UWI

ST. AUGUSTINE CAMPUS

PRINCIPAL'S RESEARCH AWARDS & CONFERENCE 2024

UWI
WELCOME TO THE
PRINCIPAL'S
RESEARCH AWARDS
& RESEARCH FESTIVAL OPENING
2023

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Greetings

The Most Honourable Dr Dodridge D. Miller
Chancellor

Dear Distinguished Researchers and Conference Attendees,

Congratulations on gathering for this remarkable research conference, where we celebrate the exceptional talent and dedication that defines our university's research community. This event offers us a unique opportunity to honour not only individual achievements, but also the collective spirit that drives us toward greater understanding, innovation, and impact – an ethos beautifully captured in our theme this year: "Research by All & Research for All".

Our theme reminds us of our mandate as lights rising from the West – a call to action that, through inclusivity and collaboration, we must push through the boundaries of knowledge to find solutions that improve the lives of the communities we serve. Each one of you brings a wealth of insight and expertise to this gathering, creating a vibrant space where groundbreaking ideas can flourish. This conference is not only an opportunity to share your work, but also a celebration of your relentless pursuit of excellence and your commitment to advancing your fields.

As you present your findings and connect with fellow scholars, remember that your contributions have the power to shape the future. Your research drives progress, inspires solutions to pressing global challenges, and propels the world forward. I encourage each of you to continue pushing boundaries, questioning assumptions, and reaching new heights.

This conference will serve as a reminder to continually challenge yourselves, to produce work that is both relevant and accessible, and to inspire future generations to see research not only as a journey of discovery, but also as a commitment to their communities.

Congratulations once again on your achievements, and best wishes for a successful and inspiring conference.

Sincerely,

Dodridge Miller
Chancellor, The University of the West Indies

Foreword

Professor Rose-Marie Antoine
Pro Vice-Chancellor and Campus Principal

It is my great pleasure as the Campus Principal of The University of the West Indies, St Augustine Campus (UWI STA) to present the 2024 Principal's Research Awards & Conference Booklet. This booklet highlights the transformative research from the winners of the 2024 Principal's Research Awards, demonstrating their contributions to advancing knowledge and fostering impactful change in their respective fields. Additionally, this year's Research Awards & Conference will unveil the process map for developing the Research Agenda 2025-2030. This map is designed to guide our researchers and graduate students, while also supporting decision-makers and funding agencies. By addressing significant national and regional challenges, The UWI STA will foster impactful research in vital areas such as health, food security, education, climate change, and socio-economic development, including entrepreneurship, digitisation, cybersecurity, and artificial intelligence.

Apart from the awards given at our Research Festival and Principal's Research Awards 2023, I am pleased to introduce a new award that reflects our responsiveness to regional disaster occurrences in the form of earthquakes and hurricanes. The Hurricane and Earthquake Alleviation Research (HEAR) Award is therefore established to promote and develop research solutions beyond traditional academia. Open to the general public, the award aims to encourage innovative and creative thinking and best practices in this critical area, as well as to promote awareness of this area. It therefore aligns perfectly with the theme for the 2024 Principal's Research Awards and Conference: Research by All and Research for All. In keeping with promoting a research culture, we are also launching the Most Promising Early Career Researcher Award. This new award seeks to honour and acknowledge the valuable contributions of emerging talents in research.

As a university rooted in Caribbean development and beyond, our objective is to provide solutions to society's most pressing regional and global challenges, offering access to specialised solutions from our leading experts. It represents our commitment to advancing the development of society, particularly given the gravity of the challenges our small islands face. In this regard, we reiterate that commitment to participatory research which leads to indigenous, sustainable solutions to usher in a new era of

progress. However, we cannot achieve this on our own. Our achievements have come with limited resources, while the need for high-quality research has grown exponentially. This compendium is our signal to the public – including government decision-makers, policymakers and technocrats, the private sector, international development partners (organisations, bilateral and regional partners), and civil society organisations (philanthropic organisations and foundations) – that our doors are open.

Our entries in this Research Awards & Conference not only capture a diverse range of critical areas, but also include a variety of scientists, researchers, budding researchers, and decision-makers. I invite all of you, our valuable readers, to partner with us to engage in purposeful research. We believe that, through collaboration, we can develop novel solutions that will shape the future of the region.

Our conference booklet is designed to provide you with a concise overview of the most transformative research of the Principal's Research awardees 2024 over the past year on our campus. They will showcase their valuable research on themes that tackle the most pressing issues facing the country, region, and beyond, contributing to meaningful solutions and advancements. These include:

(i) Climate Resilience, Microbial Innovations and Economic Development for Sustainability;

(ii) Multidimensional Research in Building Resilience to Natural Disasters in Small Island Developing States;

(iii) Multi-Disciplinary Research Towards Science and Societal Advancement: Insights from Diverse Disciplines;

(iv) Research Insights for Community Solutions.

These areas demonstrate the significant work in which our scientists and researchers have been involved. In this regard, I extend my deepest gratitude and appreciation to our winners and researchers for taking the time to contribute to this crucial document.

I express my sincere gratitude to the developmental agencies and private businesses who partnered with us to produce this booklet and who, once more, offered their generous support to the Principal's Research Awards and Conference 2024. Congratulations to all our awardees and researchers who have contributed to this compendium and shared their work. A special thank you to Professor Duraisamy Saravanakumar and his office at the School for Graduate Studies and Research for their tremendous work and dedication in making this possible.

I invite all of our readers to thoroughly explore this booklet to learn about the work of our top researchers in 2024. I sincerely hope that this research inspires and motivates future scientists and researchers to contribute positively to our community, country, and region.

Professor Rose-Marie Antoine
Pro Vice-Chancellor and Campus Principal

Greetings

Professor Aldrie Henry-Lee
Pro Vice-Chancellor, Graduate Studies and Research

Congratulations to Pro Vice-Chancellor and Principal Professor Rose-Marie Antoine, Professor Duraisamy Saravanakumar, Director of Graduate Studies and Research and their staff for the hosting of the Campus Principal's Research Awards & Conference at the St Augustine Campus. Research is our distinguishing criterion which is responsible for our ranking as the number one university in the Caribbean. I am filled with immense pride and enthusiasm about the research, innovation, excellence and collaborative spirit that define our research community at The University of the West Indies. Commendations to all researchers, and special congratulations to all research awardees. I express profound appreciation for our sponsors and ask for their continued support.

The School for Graduate Studies and Research is committed to the promotion of excellent research at The UWI. We continue to support our student and staff researchers with capacity-building opportunities, search for research grants, grant proposal writing, and grant implementation. Through our One-UWI Research Clusters, we encourage interdisciplinary collaborations, and the provision of opportunities for both emerging scholars and seasoned academics to engage in transformative work. We provide opportunities for our research students to discuss their research and enhance their work. Please join our second online annual One-UWI postgraduate students' conference scheduled for November 20-22, 2024. For more information, please visit us at **https://www.uwi.edu/gsr/pgcon**.

I am pleased with these awards and conference at the St Augustine Campus which will showcase research projects and publications that span a wide spectrum – from scientific and technological advancements, to research in the Social Sciences and Humanities.

I am immensely proud of the impactful contribution of our UWI researchers on Caribbean development. These awards & conference will promote a culture of inquiry and help prepare the next generation of leaders, thinkers, and problem-solvers for the positive transformation of our Caribbean societies.

Thank you to the visitors who will come to learn more about our research. I am sure that you will be inspired by the brilliant work of our students and academics. We hope that you will support our researchers as we, together, pave the way for a brighter and more informed future.

Thank you for joining us in celebrating the exceptional research at our University of the West Indies!

Professor Aldrie Henry-Lee
Pro Vice-Chancellor, Graduate Studies and Research

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CAMPUS AWARDS

Principal's Award for Best Researcher

Professor Adesh Ramsubhag

Department of Life Sciences, Faculty of Science & Technology

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BIOGRAPHY

Adesh Ramsubhag is a distinguished researcher whose work bridges microbiology and biotechnology with transformative impacts on human health, environmental sustainability, and agricultural resilience. With an h-index of 27 (at least 27 publications that have each been cited at least 27 times) and over 2,700 citations, Professor Ramsubhag has led over 86 peer-reviewed publications and supervised more than 90 postgraduate and undergraduate research projects. Over the past five years, he has been awarded competitive research grants, including a US$50,000 UNDP grant for Sargassum-based biostimulants and €446,000 from INTERREG for seaweed valorisation, fuelling breakthroughs in sustainable crop production and environmental remediation.

Key projects led by Professor Ramsubhag address urgent global issues, such as antibiotic resistance and pollution in tropical ecosystems. His pioneering work on antibiotic adjuvants has resulted in two patent applications, while their collaborative research has highlighted new treatment avenues for diseases carried by emerging vectors in Trinidad and innovative solutions for petroleum bioremediation using native microbes.

Professor Ramsubhag's contributions have earned accolades, including the UWI Vice-Chancellor's Award for Excellence and the Sabga Award in Science and Technology. Through his impactful research and mentorship, he continues to advance scientific knowledge, foster capacity building, and address critical challenges in health, agriculture, and the environment.

SUSTAINABLE INNOVATIONS FOR HEALTH AND ENVIRONMENT

Professor Adesh Ramsubhag's projects, grounded in sustainable innovation, span vital areas in human health and environmental welfare. Key accomplishments include identifying over a dozen novel compounds from indigenous bacteria with potential pharmaceutical applications, including two patented adjuvants aimed at counteracting antibiotic resistance via histidine kinase inhibition. These discoveries are advancing to pre-clinical trials, showcasing a strong potential for medical breakthroughs in combating resistant pathogens.

In agriculture, Professor Ramsubhag's exploration of local seaweed species as plant biostimulants has shown exceptional promise. Studies indicate that extracts from Sargassum and Ascophyllum seaweeds improve crop growth, yield, and disease resistance in tropical conditions. A new Sargassum-based formulation is already in development for commercialisation, positioning this research for economic impact.

Environmental health projects reveal high levels of faecal pollution in Trinidad's waters and underscore the presence of pathogenic organisms in air affected by Sahara dust. This work underscores the urgency for updated public health measures in Caribbean communities. Additionally, studies on mosquitoes and picornaviruses inform policies against emerging infectious diseases, with significant epidemiological implications.

Finally, petroleum bioremediation research has revealed local microorganisms' effectiveness in mitigating oil spills. These projects together present a holistic approach to pressing global challenges, and opportunities for investment in impactful solutions for sustainable development.

Principal's Award for Best Researcher

Professor Roger Hosein

Department of Economics, Faculty of Social Sciences

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BIOGRAPHY

Professor Roger Hosein is a Professor of Economics and a recognised leader in economic research for Caribbean development. Over two decades, he has focused on advancing economic resilience in Small Island Developing States (SIDS) through studies on trade vulnerability, regional integration, and environmental sustainability. Leading impactful projects like Paria Fuel's socio-economic assessments and the TEDU National Conversations seminar series, Professor Hosein has engaged key stakeholders and informed policies on topics such as foreign exchange crises and the effects of Venezuelan migration.

In addition to authoring over 60 peer-reviewed papers and 10 books, Professor Hosein serves as Director of the SURE Foundation, an initiative that supports local communities and environmental restoration through substantial food and seedling distributions. He has also secured significant funding for regional research in renewable energy and trade development strategies, while earning accolades, including a nomination to represent the Dutch islands as a Commissioner.

Through the mentorship of over 70 postgraduate students, Professor Hosein is guiding the next generation of economic leaders and continues to shape policies for sustainable growth and social equity in the Caribbean.

TRANSFORMING CARIBBEAN TRADE AND ECONOMIC POLICY FOR SUSTAINABLE GROWTH

Professor Roger Hosein's work explores critical socio-economic and trade development issues, especially for Small Island Developing States (SIDS) like CARICOM nations. Recent projects have focused on trade dynamics, economic diversification, and sustainable development policies, producing impactful publications in top peer-reviewed journals. His work includes an innovative "Vertical Index of Direct Competition" to assess trade strategies between CARICOM and major players like China and India, offering valuable insights into international trade competition.

With a strong interest in economic resilience, he has analysed COVID-19 policies' effects on female entrepreneurship, adding a gendered perspective to economic recovery strategies. Other studies delve into structural shifts in exports within CARICOM, presenting policy recommendations to enhance regional trade efficiency and mitigate resource dependency – a key theme in his analyses of the economic effects of "Dutch Disease" in Trinidad & Tobago.

He has also co-authored critical books on CARICOM's trade and development issues and the socio-economic impact of the Venezuelan migrant crisis on Trinidad & Tobago, addressing the resource challenges facing SIDS.

Professor Hosein recently completed a socio-economic assessment for Paria Fuel Trading Company's fence-line communities, supporting the design of Corporate Social Responsibility (CSR) interventions. Conference presentations, spanning regional forums and international trade symposia underscore his commitment to engaging stakeholders in development discussions. Through this rigorous work, he continues to provide a portfolio of knowledge to shape sustainable public sector economic policies and private sector business decisions.

Principal's Special Innovation Award

Mr Nishan Rampersad

Human Resources Promotion Tracking Solution

Campus Information & Technology Services (CITS)

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BIOGRAPHY

Mr Nishan Rampersad is a Senior Research Technician at the Campus Information & Technology Services (CITS). His innovations such as the Thesis Tracking and HR Promotion Tracking solutions reflect a strategic alignment with The UWI's goals of enhanced efficiency, academic excellence, and operational sustainability. Known for his forward-thinking approach, Mr Rampersad has driven process improvements that have streamlined workflows, reduced costs, and enhanced both student and staff experiences.

With experience across diverse roles within The UWI, Mr Rampersad's projects – ranging from SharePoint governance to the automation of the campus election process and emergency notifications – consistently contribute to saving resources and empowering teams across the university.

Holding certifications and degrees in IT, business, and strategic governance, Mr Rampersad continues to shape a digitally innovative and socially responsible academic environment, building lasting impacts aligned with The UWI's commitment to community and excellence.

GREEN ADMINISTRATION: SCALABLE TRACKING SOLUTIONS FOR EFFICIENT, PAPERLESS WORKFLOWS

Mr Nishan Rampersad has developed innovative tracking solutions aimed at streamlining critical university processes, enhancing transparency, and ensuring efficient service delivery.

The HR Promotion Tracking Solution improves workflow for staff promotions by allowing HR and management to track applications through each stage of approval. Piloted successfully with the Faculty of Medical Sciences, this solution not only enhances record-keeping but also supports data-driven decision-making. By providing real-time status updates and improving transparency, it strengthens accountability, and fosters trust within the institution.

His volunteerism to develop and validate innovative digital solutions for administrative efficiency serves as model to inspire fellow staff members.

His current project to develop the Thesis Tracking Solutions will allow university staff to monitor each student's thesis application status in real time, providing timely updates to both staff and students. This solution is currently being designed to address the issue of "lost" or delayed applications, significantly improving the experience for postgraduate students navigating the thesis process. In response to evolving needs, Mr Rampersad adapted the platform to enable secure, multi-tenant communication, overcoming complex IT and security challenges.

Both systems align with the United Nations Sustainable Development Goals, contributing to environmental sustainability by reducing paper use and lowering carbon emissions. There is also the potential for application in companies and industries beyond higher education.

Principal's Award for Most Impactful Community Research

Professor Shirin Haque

Women In Science for Hope Foundation

Department of Physics, Faculty of Science & Technology

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BIOGRAPHY

Professor Shirin Haque is a Professor of Astronomy whose areas of research include observational astronomy, cosmology and astrobiology. She is a fellow of the Royal Astronomical Society and has an MPhil in Psychology. Beyond academia, she is a passionate advocate for vulnerable youth. Inspired by her own experiences and the support she received growing up, Professor Haque understands the transformative power of education and mentorship.

She is the recipient of nine previous local, regional and international teaching and science research awards, and is the first woman to receive the CARICOM Science Award. In 2020, Professor Haque was honoured as the Sabga Laureate for Science and Technology. That same year, she founded the Women In Science for Hope Foundation, a nonprofit organisation that provides scientific mentorship and support to children in protective homes.

Professor Haque is the director of the UWI-NRAO NINE Caribbean hub for radio astronomy and RADIAL programme, and a co-founder of Caribbean Astronomy for Inclusion for bringing astronomy to the blind and persons with disabilities. She has produced several Caribbean science documentaries, hosted three science television series and her own YouTube Channel – all part of her vision of a world where every child has the opportunity to reach for the stars.

WOMEN IN SCIENCE FOR HOPE (WISH) FOUNDATION

The Women In Science for Hope (WISH) Research Foundation, founded by Professor Shirin Haque in 2020, offers educational resources and hands-on scientific experiences to foster self-esteem, ambition, and curiosity in children who may otherwise lack access to these opportunities. According to Professor Haque, "The universe belongs to us all equally. Yet, there is lack of equity when it comes to access to astronomy."

WISH has received awards from the International Astronomical Union (IAU), and the Women and Girls in Astronomy Programme (WGAP). In 2022, the IAU awarded WISH a 4,000 Euro grant, enabling the foundation to launch "Our Caribbean Sky," a project that introduced children to astronomy through a custom-designed kit, complete with planispheres, sundials, and a book authored by Professor Haque. During the COVID-19 pandemic, these resources, accompanied by instructional videos, reached children who otherwise could not participate directly. In 2023, WGAP granted $1,000 USD to support WISH's "Binoculars – Stepping Stones to Eyes in the Skies" initiative, which provides binoculars and astronomy presentations to children's homes. This project was chosen for presentation at the prestigious American Astronomical Society meeting in January 2024.

Funded by individual donations and corporate sponsors, WISH also produces a magazine, WISH Upon a Star, which showcases children's creative work and provides updates on WISH activities.

A related project, the Caribbean Astronomy for Inclusion (CAI), targets another underserved community: the visually impaired. CAI is developing tactile materials and using technology to convert light into sound to enable blind persons to hear things like an eclipse, and to develop an Audio Universe version for the Caribbean from Newcastle University.

Best Team Research

Dr Ricardo Clarke, Dr Xsitaaz Chadee & Team

Department of Physics, Faculty of Science & Technology

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BIOGRAPHY

The Department of Physics' ten-person research team at The UWI St Augustine Campus brings together a diverse array of experts in sustainable infrastructure, water resource management, renewable energy, healthcare, and agricultural sciences. This multidisciplinary team includes specialists whose work addresses region-specific challenges, from developing a soil expansivity model, to informing urban planning, to innovating cardiovascular risk assessment tools tailored for local populations. Each team member's expertise plays a pivotal role in advancing projects aligned with the United Nations Sustainable Development Goals, creating high-impact research that resonates with both local and international stakeholders.

To ensure coherence and foster deep collaboration, the team has implemented a range of innovative strategies. Weekly "Sustainable Futures" seminars allow members to share insights from their fields, promoting cross-disciplinary understanding and collective problem solving. The team's unique "teach-back" approach encourages researchers returning from external workshops to disseminate new knowledge, ensuring continuous professional growth. Collaborative off-site retreats further enhance team synergy by building interpersonal connections in informal settings, while an open-plan laboratory layout promotes spontaneous knowledge sharing and rapid feedback. Together, these strategies have cultivated a dynamic, cooperative environment, enabling the team to produce actionable research and solutions that invite meaningful investment for impactful regional transformation.

SUSTAINABLE FUTURES – BUILDING RESILIENT COMMUNITIES THROUGH HEALTH, INFRASTRUCTURE AND CLEAN ENERGY

The "Sustainable Futures" project is a groundbreaking effort led by researchers at The University of the West Indies. It focuses on creating stronger, more sustainable communities across the Caribbean by addressing important challenges in public health, energy, infrastructure, and agriculture. This project supports the United Nations Sustainable Development Goals (SDGs), and meets key needs in the CARICOM region.

In public health, the project aims to prevent cardiovascular diseases like heart disease by identifying people at high risk through data-driven models. In energy, the team is exploring solar and wind power as alternatives to fossil fuels, helping the Caribbean move toward clean, affordable energy. For infrastructure, researchers are studying Trinidad's unique soils to improve building practices that can withstand local environmental conditions. The project also addresses water issues, creating models to predict future water levels in Trinidad's reservoirs, so communities can plan better for droughts. Similarly, the agriculture team is working with cocoa farmers to test sustainable drying techniques that use solar energy, which can improve crop quality and support farmers' incomes.

By working with partners like Aalborg University and local energy companies, and by receiving support from various donors, "Sustainable Futures" is paving the way for a greener, healthier Caribbean. This project offers a unique chance for investors to support meaningful change that benefits the Caribbean and the wider world.

Most Outstanding Regional/ International Research Project

Dr Sandeep B Maharaj & Team

School of Pharmacy, Faculty of Medical Sciences

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BIOGRAPHY

The interdisciplinary research team behind this project is a dynamic collaboration of 43 experts from prestigious institutions worldwide, including The University of the West Indies, Imperial College London, Stanford University, the Red Cross Red Crescent Climate Centre, and various global health and climate-focused organisations. This collective brings together leaders in medicine, public health, climate science, psychology, and behavioural sciences, united by a mission to address the complex intersection of climate change, health, and mental well-being. With representatives from faculties such as Medicine, Natural Sciences, and Psychology, and affiliations across diverse centres like the Grantham Institute for Climate Change and the Environment, Climate Cares Centre, and Susty Vibes, the team's expertise spans continents and disciplines.

Their research addresses urgent global challenges, including climate-induced health impacts and innovative solutions for mental health resilience. By integrating insights from climate science, mental health, public health, and community engagement, the team aims to create actionable frameworks that foster sustainable health outcomes in vulnerable populations.

The team is led by Professor Sir David Nabarro, Co-Director of the Institute of Global Health Innovation. The UWI's representative, Dr Sandeep Maharaj, is a Senior Lecturer in the Faculty of Medical Sciences and member of the core research team.

CONNECTING CLIMATE MINDS: TACKLING CLIMATE CHANGE AND MENTAL HEALTH

Connecting Climate Minds is a global project bringing together experts to study how climate change affects mental health. Led by Imperial College London, with help from The University of the West Indies and other partners, this project aims to connect researchers, policymakers, healthcare providers, and people who have faced mental health challenges due to climate change. By building a strong, supportive community across regions, *Connecting Climate Minds* seeks to create a plan for future research that will help protect mental health and guide climate action.

The project has set up seven regional communities of practice, each in a different part of the world. These groups hold meetings to talk about the unique mental health needs in their regions, bringing in voices from youth, indigenous communities, and small farmers. A global online hub also provides a space for people around the world to share information and resources.

With funding of $2.7 million from the Wellcome Trust, *Connecting Climate Minds* has gained international attention at and beyond major events like COP28, a UN climate conference. The goal is to make sure that policies are based on real experiences from people affected by climate change. By building connections across countries and cultures, this project hopes to improve mental health support for those facing climate-related challenges, and to inspire action toward a healthier planet.

Most Productive Research Department Award

Department of Basic Veterinary Sciences

Head of the Department, Prof Venkatesan Sundaram & Staff
School of Veterinary Medicine, Faculty of Medical Sciences

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BIOGRAPHY

The Department of Basic Veterinary Sciences (DBVS) at The University of the West Indies, St Augustine stands as a beacon of research excellence in veterinary and biomedical sciences within the Caribbean and beyond. Renowned for its impactful work across veterinary virology, parasitology, public health, and One Health approaches, DBVS has achieved impressive metrics: 8,973 citations, an h-index of 149, and an i10-index of 230, showcasing the global influence of its research. With 109 peer-reviewed publications in high-impact journals and presentations at over 133 international conferences in the last five years, the Department actively drives advancements in veterinary science and public health.

In the past five years, DBVS has attracted TT$12.4 million in funding, including major grants from the European Union, US Department of Agriculture, and the Food and Agriculture Organization, fuelling projects on the African and Classical Swine Fevers, climate resilience, and zoonotic disease control. The Department's research innovations have led to consultancy services, public health improvements, and sustainable revenue streams, including the establishment of a national COVID-19 diagnostic laboratory. Through regional and international collaborations, DBVS addresses pressing challenges in health and environmental sustainability, paving the way for strategic partnerships that promise both societal impact and economic benefits.

LEADING THE WAY IN PUBLIC HEALTH AND FOOD SAFETY THROUGH RESEARCH IN VETERINARY SCIENCE

The Department of Basic Veterinary Sciences (DBVS) has made important contributions to animal and public health, food safety, and environmental protection in Trinidad & Tobago and the wider Caribbean.

The DBVS played a critical role in the COVID-19 pandemic by establishing national testing capabilities, and launched the Climate Change and Health Leaders Fellowship, which trains professionals to build health systems that can handle climate impacts.

In addition to health research, the DBVS works on improving food safety in the poultry industry, protecting livestock from diseases, and controlling the spread of diseases that can transfer from animals to humans. Their "One Health" approach includes studying wildlife diseases, which is important for understanding and preventing health risks to people.

DBVS team members actively contribute to public health and veterinary organisations. Key staff serve on the Caribbean Animal Health Network and the Caribbean Public Health Agency task forces, influencing policies on disease prevention and food safety. Their roles on these boards and task forces reflect their commitment to community well-being and regional health resilience.

The work of the DBVS not only advances veterinary science but also strengthens public health, food security, and environmental health across the region. Through groundbreaking research and public service, the DBVS makes a significant, positive impact, positioning itself as a valuable partner for future investments in health and sustainability.

DBVS researchers are internationally recognised, with members ranked among the world's top 2% of scientists by Stanford University, underscoring the Department's global impact.

Most Productive Research Institute, Centre or Unit Award

Seismic Research Centre

Director Dr Erouscilla Joseph & Staff

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BIOGRAPHY

The Seismic Research Centre (SRC) is a leading research group focused on studying earthquakes and volcanoes in the Caribbean to help protect communities and improve environmental safety. Over the years, the SRC has carried out important projects like managing the Montserrat Volcano Observatory, mapping earthquake risks in Trinidad & Tobago, and preparing St Vincent's communities for volcanic eruptions. These efforts show the SRC's dedication to using science to make the region safer, to making a real difference in people's lives, and to supporting the United Nations' goals for sustainable development.

With strong research funding support and a long list of published work, the SRC has earned recognition around the world. Recently, they received awards such as the International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI) Award for their work during the La Soufrière eruption in St Vincent and a University of Cambridge award for impactful teamwork.

By partnering with local and global organisations, the SRC's dedicated scientists continue to explore new ways to protect communities and prepare for natural disasters. Their work offers valuable opportunities for investment in new technologies and strategies that improve safety and protect the environment.

PIONEERING VOLCANIC AND SEISMIC RESEARCH FOR A SAFER CARIBBEAN

Based on the comprehensive research output from the Seismic Research Centre (SRC), the Centre has established itself as a leading institution in monitoring and mitigating volcanic and seismic risks in the Caribbean. Over the past five years, the SRC has conducted groundbreaking studies on volcanic deformation, seismic hazards, and risk mitigation, publishing extensively in high-impact scientific journals. Key projects include in-depth analyses of the 2020-2021 La Soufrière eruption, with findings that have significantly improved eruption forecasting models and contributed to global volcanic science.

The SRC's multidisciplinary research encompasses geophysical monitoring, hazard assessments, and community resilience-building. Collaborative projects, such as the Volcano-Ready Communities Project in St Vincent, underscore the Centre's commitment to enhancing regional safety and preparedness, empowering communities near active volcanoes through strategic education and training. Similarly, the Centre's myHAZ citizen science system is a tool which lets everyday people report hazards they observe, making communities more aware of risks. These examples illustrate the SRC's ability to integrate public engagement with scientific advancements, fostering a proactive culture of risk awareness.

Strategic partnerships with international institutions, including the Geological Society of London and multiple universities, have furthered the SRC's influence, allowing for knowledge exchange and capacity-building across the Caribbean. Through these efforts, the SRC has successfully leveraged research into commercially viable consultancy services. For instance, they provide seismic risk assessments for building safer cities and conduct geothermal surveys to help develop sustainable energy. These achievements position the SRC as an essential partner in developing disaster resilience with proven expertise and an innovative approach to seismic research and environmental safety.

Most Promising Early Career Researcher Award

Dr Preeya Mohan

Senior Fellow, Sir Arthur Lewis Institute of Social and Economic Studies

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BIOGRAPHY

Dr Preeya Mohan, Senior Fellow at the Sir Arthur Lewis Institute of Social and Economic Studies (SALISES), is the top-ranked Economics researcher in Trinidad & Tobago and 71st in Central America and the Caribbean on IDEAS, a major Economics research database. On Google Scholar she has recorded 901 citations, and at least 25 of her papers have each been cited 25 times or more. Her ResearchGate Interest Score surpasses 85% of all members and 90% in Development Economics. Amazingly, though not yet 40, Dr Mohan has achieved all of this in less than a decade.

Dr Mohan focuses on climate resilience and sustainable development for Caribbean Small Island Developing States (SIDS), addressing the economic and non-economic impacts of climate change. Her research includes 30 peer-reviewed articles and contributions to top journals like *Nature Climate Change*. She has either led or contributed to eight projects securing over TT$1.5 million in funding.

Dr Mohan has presented at major international conferences, and meetings of the Conference of the Parties (COP) to the UN Framework Convention on Climate Change. She is co-editor for the *Island Studies Journal*, and a prominent member of the Loss and Damage Research Observatory and the International Finance Expert Working Group for The Fossil Fuel Non-Proliferation Treaty. In 2024 she received the Saleemul Huq Memorial Scholarship for loss and damage research.

ECONOMIC SOLUTIONS TO BUILD CLIMATE RESILIENCE

Dr Preeya Mohan's work stands at the intersection of development economics, climate resilience, and policy innovation, providing critical insights into the challenges facing Caribbean Small Island Developing States (SIDS). With a focus on disaster economics, her pioneering methodologies quantify the impact of hurricanes on the economies across the region – such as effects on GDP, employment, and public finances – providing data-driven strategies to enhance disaster preparedness and resilience. Her contributions to climate finance examine the gap in funding for climate adaptation and mitigation projects, and identify obstacles that prevent Caribbean nations from accessing vital financial support. Her innovative financing solutions can help Caribbean governments to meet their climate goals under the Paris Agreement.

Her groundbreaking research on Carbon Border Adjustment Mechanisms (CBAMs) has informed national discussions in Trinidad & Tobago, highlighting both risks and opportunities for decarbonisation. Working with global organisations, including the International Institute for Sustainable Development and the International Labour Organization, Dr Mohan has published high-impact studies that bridge economics, tourism, environmental science, and policy.

In addition to numerous peer-reviewed articles, Dr Mohan has produced policy reports and technical papers with actionable recommendations for climate-resilient development. Her interdisciplinary approach combining economics, tourism, environmental science, and policy, enriches the academic literature and provides practical solutions for stakeholders in the public and private sectors, encouraging partnerships that drive sustainable growth and resilience in the face of climate change.

Most Promising Early Career Researcher Award

Dr Oshaine Blake

Senior Lecturer, Department of Chemical Engineering, Faculty of Engineering

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BIOGRAPHY

Dr Oshaine Blake is something of a rising rock star in the field of Geomechanics research in the Caribbean. Since joining The UWI as a Lecturer in Chemical Engineering in 2014, he has built three world-class research facilities at the St Augustine Campus – a geomechanics laboratory, a specialised rock preparation workshop, and a thin section laboratory. These unique facilities, completed in a record five years, support research in fracture and fluid flow across applications such as CO2 capture, hydrogen storage, and geothermal energy.

A young researcher under 40, Dr Blake has contributed more than 20 leading publications, averaging five articles annually over the last four years alone. His work enriches the academic literature while also addressing critical, practical regional challenges, such as energy security and disaster preparedness, through studies on unconventional resources and mud volcanoes.

With three PhD students already graduated with his supervision, and considering his service as a reviewer for 14 international journals, Dr Blake is clearly dedicated to furthering the field and mentoring the next generation of scientists. His determination and innovation have made him a valuable asset to the university and the wider scientific community, embodying a model of resilience and impact in Caribbean research.

GEOMECHANICS RESEARCH: CARBON STORAGE, ENERGY RESOURCES, AND VOLCANIC HAZARDS

Geomechanics is a hybrid field encompassing geology, geophysics, and engineering, and is relatively new in the Caribbean. Specifically, Dr Oshaine Blake conducts both blue sky (fundamental) research and its application within geology, geophysics, and the energy sector. His research delves into reservoir characterisation, unconventional reservoirs, geothermal energy, carbon capture and sequestration (or storage), mud volcanoes, wellbore stability analysis, static and dynamic elastic properties, deformation bands, and fault zones.

He has produced a substantial body of work, including numerous publications in peer-reviewed journals such as *Rock Mechanics and Rock Engineering* and the *International Journal of Rock Mechanics and Mining Science*. Through his research, he addresses key issues in energy security and environmental sustainability.

Dr Blake has received significant research grants to investigate CO2 injection effects on reservoir integrity and to monitor mud volcanoes in Trinidad, including over TT$4 million in funding from the Ministry of Energy and Energy Industries. These projects aim to enhance the safety and efficiency of carbon storage and improve volcanic hazard monitoring.

In addition to his research, Dr Blake supervises graduate students working in related areas. This guidance prepares students to contribute to fields relevant to the energy and environmental sectors in the Caribbean.

Dr Blake's work has practical applications in improving wellbore stability for Trinidad's oil and gas industry, optimising geothermal energy production, and developing safety measures for volcanic hazards. His contributions aim to support the advancement of sustainable practices in energy and environmental management.

Dr Sephra Rampersad
Senior Lecturer - Supervisor
Department of Life Sciences,
Faculty of Science and Technology

Dr Amanda Christine Ramdass
Graduate Student - PhD in Biochemistry
with High Commendation

Most Outstanding Graduate Researcher Award & Mentorship Award

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BIOGRAPHY

Dr Amanda Ramdass, a 2024 PhD graduate from the Department of Life Sciences at UWI, has focused her research on the biochemical and genomic features of hydrocarbonoclastic microbes – a specific group of microorganisms, primarily bacteria, that have the ability to degrade hydrocarbons – in Trinidad. She approaches research with critical thinking and a systematic approach to problem solving. Dr Ramdass has earned multiple awards for her work, including recognition in international competitions. Her attention to detail, adherence to ethical standards, and ability to communicate research findings have been integral to her success, and she has also demonstrated initiative by leading projects and mentoring undergraduate students.

Dr Sephra Rampersad, Dr Ramdass's thesis supervisor, is an accomplished researcher ranked among the top 2% in her field. She combines her expertise with a supportive mentoring style, setting high standards while offering constructive feedback and maintaining accessibility to her students. Dr Rampersad's guidance has supported Dr Ramdass's significant contributions to the field and to the research community. Together, they represent a productive research partnership that reflects the strengths of UWI's research environment.

UNLOCKING TRINIDAD'S BIODIVERSITY TO COMBAT OIL POLLUTION

Under the supervision of Dr Sephra Rampersad, Dr Amanda Ramdass's research has focused on creating improved techniques for using microorganisms to help clean up hydrocarbon pollution, particularly at oil-contaminated sites in Trinidad. The study identified indigenous microbial strains capable of breaking down hydrocarbons, laying the groundwork for developing targeted bioremediation strategies aimed at reducing the environmental damage from oil spills.

The research has practical applications for environmental management and public health. By isolating microorganisms with high potential for crude oil degradation, this work could lead to more effective methods for cleaning up contaminated environments. These methods could lower the economic and ecological impact of hydrocarbon pollutants in the long-term and improve conditions for communities affected by oil spills.

The study also contributes to environmental sustainability by helping scientists understand how to restore polluted ecosystems. This work supports sustainable environmental management and highlights Trinidad's biodiversity as a resource for further research.

This research uses an interdisciplinary approach, combining microbiology, biochemistry, and environmental science to address pollution and bioremediation challenges with potential industrial applications, making it of interest to investors focused on sustainable solutions.

FACULTY AWARDS

Most Outstanding Faculty Researcher - Engineering

Professor Michelle Mycoo

Department of Geomatics Engineering and Land Management

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BIOGRAPHY

Professor Michelle Mycoo is a Professor of Urban and Regional Planning in the Department of Geomatics Engineering and Land Management at The UWI St Augustine Campus, with 25 years of experience. Her research focuses on climate change adaptation, urban planning, and sustainable development, particularly in Small Island Developing States, which is applicable to policy-making and practical solutions. In the last five years, she has secured over US$4 million in research funding, supervised 58 postgraduate students, and received the 2019/2020 UWI Vice-Chancellor's Award for Excellence in Research and Public Service. Professor Mycoo was a member of the Intergovernmental Panel on Climate Change (IPCC) which was declared a co-laureate of the 2022 Gulbenkian Prize for Humanity, together with the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. She was one of 47 coordinating lead authors for the United Nations IPCC 6th Assessment Report, coordinated the Small Islands chapter, and was a Contributing Author to chapters on Cities, Settlements and Infrastructure, and Climate Resilient Development Pathways. Her research outputs include technical reports, publications for the Intergovernmental Panel on Climate Change, and policy guidance for organisations such as UNESCO, UNEP, and CARICOM. She serves as Vice-President of UNESCO's Management of Social Transformations (MOST) Programme, and is a member of the International Science Council.

SCIENCE AS A PUBLIC GOOD

Professor Michelle Mycoo's research on climate adaptation and urban resilience for Small Island Developing States (SIDS) is designed to translate scientific findings into actionable strategies that improve conditions on the ground. By providing evidence-based insights to governments, local authorities, and community organisations, her work supports decision-makers in implementing policies that enhance resilience against climate-related risks.

Professor Mycoo's contributions to the Intergovernmental Panel on Climate Change (IPCC) reports, particularly the "Small Islands" chapter, exemplify how scientific research can support policy development for vulnerable regions. This work has informed international negotiations and local adaptation strategies, directly impacting communities affected by climate change. Her involvement in the Situated Understanding and Resilience in Island Societies and Environments project and collaborations with global organisations like the United Nations further underscores her commitment to applying research findings in ways that strengthen resilience and support sustainable development in SIDS.

Through postgraduate student mentorship, Professor Mycoo fosters a new generation of professionals equipped to apply scientific knowledge to practical challenges in climate-sensitive urban planning. Her advocacy for sustainability in engineering education aims to prepare future engineers to tackle environmental issues with practical solutions. Her efforts reflect a belief that scientific knowledge should extend beyond academia, driving real-world change and improving lives at the community level.

Most Outstanding Faculty Researcher-Food & Agriculture

Dr Ronald Roopnarine

Senior Lecturer, Department of Food Production

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BIOGRAPHY

Dr Ronald Roopnarine is a Senior Lecturer and Deputy Dean of Outreach and Internationalisation in the Faculty of Food and Agriculture. Specialising in Agri-Environmental Disaster Risk Management, Dr Roopnarine has focused on building climate resilience across the Caribbean, contributing to the United Nations Sustainable Development Goals. Since joining the Faculty in 2019, he has developed new courses and a major in Disaster Risk Resilience for Agriculture and the Environment, which launched in 2023. He is the Network Manager for Caribbean WaterNet, the Caribbean branch of CapNet UNDP, and contributes to the Global Water Partnership-Caribbean Technical Scientific Committee.

Dr Roopnarine has secured over 8 million USD in funding for research projects in collaboration with national and international agencies. His service to Trinidad & Tobago has included chairing the EMA's Green Leaf Awards, co-chairing the TTBS Steering Committee on Wastewater Reuse Standards, and serving as a representative on the Joint Select Committee on Climate and Infrastructure in Trinidad & Tobago.

With 15 peer-reviewed publications, multiple book chapters and ongoing supervision of doctoral students in the last five years, Dr Roopnarine also serves as a reviewer for international journals and is an active member of two prominent international scientific committees: the International Water Resources Association International Scientific Committee for the 2024 Islands Water Congress, and the Scientific Committee of the Integrated Research on Disaster Risk Programme.

ADVANCING CLIMATE RESILIENCE AND WATER SUSTAINABILITY FOR CARIBBEAN SIDS

Dr Ronald Roopnarine's research focuses on helping Caribbean Small Island Developing States (SIDS) become more resilient to disasters and manage resources sustainably. His recent projects address issues with water, land, and agriculture. Key projects include reusing wastewater to help solve water shortages in the Caribbean, and studying how climate change affects food safety to improve farming resilience. He has also led efforts to build skills in the region, like creating training guides for efficient water use in farming and ecosystem management, funded by organisations such as the FAO and UNDP. His role on the High-level Experts and Leaders Panel on Water and Disasters and other international panels highlights his contributions to reducing water-related disaster risks globally.

Dr Roopnarine's publications have been featured in journals such as *Nature Scientific Reports and PLOS Water*, and address water resource challenges and strategies for climate resilience. In addition to academic work, Dr Roopnarine regularly appears on Caribbean news platforms, discussing disaster risk reduction, sustainable agriculture, and water conservation.

His current work in flood and landslide risk assessment, soil analysis using mapping technology, and disaster resilient agriculture shows his commitment to addressing significant environmental challenges in SIDS, and offering practical solutions that could benefit communities and guide policymakers in the region.

Most Outstanding Faculty Researcher - Humanities & Education

Professor Jerome De Lisle

School of Education

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BIOGRAPHY

Professor Jerome De Lisle has been with The UWI since 1995, advancing from Lecturer to his current role as Professor of Educational Leadership. His research focuses on educational leadership and evaluation, emphasising equity and the challenges faced by marginalised groups in Caribbean education. His work provides insights and practical recommendations for policymakers and stakeholders, focused on advancing equity and effectiveness in Caribbean education, and supporting evidence-based improvements in Caribbean education.

Professor De Lisle has been recognised for his contributions with awards such as the Best Paper Award from the American Educational Research Association, The Caribbean and African Special Interest Group, as well as a keynote presentation at the Mixed Methods International Research Association 2024 conference. Recent projects include a review of the Secondary Entrance Assessment (SEA) and the Concordat, and the establishment of research clusters within the School of Education. He also served as Chair of the Campus Ethics Committee from 2019 to 2023, and Director of the School of Education from 2019 to 2022. He has produced over 30 publications, including peer-reviewed journal articles, book chapters, and conference papers. In addition to these, he has authored at least four technical reports. His work has garnered 1,308 citations in total, with 550 citations since 2019.

ADVANCING EQUITY AND INNOVATION IN CARIBBEAN EDUCATION

Professor Jerome De Lisle's research focuses on advancing equity, inclusive policy, and innovative assessment practices in Caribbean education. His recent work on gendered educational outcomes examines disparities in academic engagement, aiming to reduce dropout rates and improve inclusivity. He has also made significant contributions to mixed methods research, educational evaluation, and policy development in the region.

In 2021-2022, Professor De Lisle led the SEA/Concordat review, producing a 403-page report with recommendations to improve the transition from primary to secondary education in Trinidad & Tobago. This report has since informed further studies on decolonisation, indigenous methods, and classroom assessment, and is the basis of a proposed book on educational equity.

At the School of Education, Professor De Lisle established three research clusters – the Psychoeducational and Diagnostic Intervention Clinic (PEDIC) operating committee, the Public Examination Group, and the Plural Notions of Fairness Group – to address critical educational issues collaboratively. He has secured funding for projects on topics such as reducing male underachievement across the Caribbean, evaluating Trinidad & Tobago's Shell STEM Education Programme, developing a PreK-12 curriculum for Montserrat, and founding PEDIC to provide diagnostic services and educator training.

Additionally, Professor De Lisle developed the Framework for Performance Standards and Indicators (FPSI) model for classroom assessment, promoting formative assessment and 21st century skills, now adopted by the Ministry of Education for teacher professional development.

Most Outstanding Faculty Researcher - Law

Dr Justin Koo

Senior Lecturer

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BIOGRAPHY

Dr Justin Koo, Senior Lecturer in the Faculty of Law, has made transformative contributions to the field of intellectual property law, while emphasising the importance of accessible and culturally relevant intellectual property law in the Caribbean. His research in copyright law has influenced legal developments both regionally and internationally. The regulations he has developed for collective management organisations address a dire need for standardised legal frameworks in the Caribbean, and promise to be a game changer for creatives across the region who want to monetise their talent.

Dedicated to building intellectual property awareness, he founded IP ArchIPelago, a blog focused on Caribbean intellectual property issues, and published the first comprehensive book on Trinidad & Tobago's intellectual property laws. Dr Koo also has interests in trademark law, sports law, and legal research skills.

His contributions to the study of Law at The UWI include the introduction of new courses, such as Entertainment Law and Sports Law, and he updated the curriculum at the faculty to better support intellectual property education. During his term as Deputy Dean from 2021 to 2023, he strengthened the Faculty's PhD programme, implementing support structures that led to the first on-time doctoral completions.

ADVANCING INTELLECTUAL PROPERTY LAW AND POLICY IN THE CARIBBEAN

Dr Justin Koo's research in intellectual property law has contributed to policy development in the Caribbean and beyond. He was commissioned by the World Intellectual Property Organization (WIPO) to draft a new Copyright Act for St Kitts & Nevis, aimed at aligning the country's laws with international copyright treaties. He also drafted regulations to govern Collective Management Organisations in Trinidad & Tobago. These organisations represent the rights of authors, artists, musicians, and other creators to collectively manage and license their intellectual property rights. When implemented, these regulations will have a tremendous impact on persons involved in the country's vibrant creative industry.

Dr Koo's work has gained broad recognition. His book, The Right of Communication to the Public in EU Copyright Law, has been cited by the Court of Justice of the European Union, a rare achievement for a Caribbean scholar, and his expertise has informed legal proceedings in Trinidad & Tobago, with reports referenced in cases and legislative debates.

As a supervisor, Dr Koo guides graduate students researching topics such as copyright law standards and data protection in the Commonwealth Caribbean. These projects also contribute to the understanding and development of legal frameworks in the region.

Dr Koo also serves as a Tier 1 Trainer at the National Intellectual Property Training Centre, supporting intellectual property education. His work aligns with the United Nations Sustainable Development Goals related to innovation and justice, and his publications serve as essential resources for teaching intellectual property law from a uniquely Caribbean perspective.

Most Outstanding Faculty Researcher - Medical Sciences

Dr Shastri Motilal

Senior Lecturer, Department of Para-clinical Sciences

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BIOGRAPHY

Dr Shastri Motilal is a Senior Lecturer in Family Medicine with extensive experience in medical research and education and a deep commitment to advancing medical knowledge through interdisciplinary collaboration.

Since joining The University of the West Indies in 2012, Dr Motilal has achieved significant milestones, including integrating Evidence-Based Medicine (EBM) into the MBBS curriculum, impacting over 2,500 students. He also developed a fully online EBM course for postgraduate students across UWI campuses, enhancing their ability to interpret medical research. Dr Motilal has supervised 13 postgraduate students, and provided statistical analysis support to 16 others outside his Department. In 2022, he conducted a study on the research needs of postgraduate students in his Faculty to identify areas where stronger support is needed.

Dr Motilal's research contributions have great potential to inform policy development at the national levels in areas of non-communicable disease management, vaccine hesitancy and public health messaging, community resiliency building, and medical workforce planning. His works in medical education has implications for curriculum delivery, assessment, and student support.

BUILDING KNOWLEDGE AND CAPACITY IN PUBLIC HEALTH

Over the past five years, Dr Shastri Motilal has published 34 peer-reviewed studies on critical health issues, including post-COVID-19 conditions, non-communicable diseases (such as cardiovascular health, diabetes, and hypertension), vaccine hesitancy, and mental health. These publications contribute significantly to understanding and addressing major public health challenges, particularly in the Caribbean.

Dr Motilal's work includes two systematic reviews which synthesise existing evidence, and a double-blind randomised controlled trial, the gold standard in medical research for assessing treatment efficacy. Among these, a systematic review on post-COVID-19 conditions offers insights that are vital for future research design and potential interventions. Additionally, Dr Motilal serves as a peer reviewer for both international and regional medical journals, supporting the advancement of medical knowledge.

Beyond his own research, Dr Motilal has supervised many graduate students in the Master of Public Health (MPH) and Doctor of Medicine (DM) programmes. Under his mentorship, students have conducted research on diverse topics, including healthcare workers' attitudes during COVID-19, quality of life among HIV patients, and patient satisfaction with telemedicine for chronic diseases. Several of these student-led projects have been published or presented at conferences, further enriching the field of medical and public health research.

Most Outstanding Faculty Researcher - Science & Technology

Dr Richard Taylor

Senior Lecturer, Department of Chemistry

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BIOGRAPHY

Dr Richard Taylor is a Senior Lecturer in Inorganic Materials Chemistry at the Faculty of Science & Technology, where he focuses on sustainable nanomaterials with applications in solar cells, LEDs, transparent electronics, and energy-efficient devices. His work in inorganic and hetero-nanostructured materials explores advanced electronic, optical, and electrochemical properties that support technological innovation in these fields.

Dr Taylor has made significant contributions to the advancement of chemistry both locally and internationally. He served as co-chair of the local organising committee for the 2nd Commonwealth Chemistry Conference in 2023, hosted at the Campus, and played a key role in organising the Biennial Regional Conference on Chemical Science, Technology, and Industry. He is also a founding member of the Trinidad and Tobago Chemical Society and an executive member of CARISCIENCE, a UNESCO-supported organisation aimed at building scientific capacity across the Caribbean.

Through international collaboration, Dr Taylor has participated in research at institutions like Brookhaven National Laboratory and the University of Manchester. He regularly reviews for leading scientific journals, and serves as a reviewer for research proposals at the Centre for Functional Nanomaterials, Brookhaven National Laboratory. In addition, he mentors research students, equipping them with practical skills and supporting their development in cutting-edge scientific projects.

SUSTAINABLE NANOTECHNOLOGY FOR RENEWABLE ENERGY AND ENVIRONMENTAL APPLICATIONS

Dr Richard Taylor's research focuses on the development of sustainable, environmentally friendly nanomaterials for applications in energy, electronics, and environmental monitoring. Over the past five years, Dr Taylor has led or collaborated on 12 grant-funded projects, focusing on the synthesis and characterisation of transition metal chalcogenides (TMCs) and lanthanide metal-organic frameworks (Ln-MOFs). These materials are intended for use in solar cells, LEDs, electro-optical sensors, and transparent solar windows to enhance greenhouse crop yields.

He has secured substantial funding for his research, including a $5 million grant from the US National Science Foundation and $300,000 from the US Department of Energy, supporting collaborative projects at advanced research facilities like Brookhaven National Laboratory. These grants have been integral to the in-depth exploration of the optoelectronic properties of nanomaterials.

Dr Taylor supervises a team of postgraduate students who actively contribute to these projects, with many presenting their work at international conferences. The team's research aligns with global sustainability goals, addressing renewable energy needs, environmental monitoring, and biomedical applications. Dr Taylor's work is of interest to anyone interested in emerging technologies related to sustainable electronic materials.

Most Outstanding Faculty Researcher - Social Sciences

Dr Riann Singh

Senior Lecturer, Department of Management Studies

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BIOGRAPHY

A Senior Lecturer in the Department of Management Studies within the Faculty of Social Sciences, Dr Riann Singh brings over 11 years of experience in organisational sciences. Her research focuses on critical topics such as organisational embeddedness, dysfunctional retention, workplace mistreatment, abusive supervision, and destructive leadership.

Dr Singh's work has been recognised with multiple awards at international conferences. In 2022, she received the Best Research Paper Award at the International Academic Conference on Business in New York, USA, for a paper on the roles of perceived organisational support and trust in predicting organisational embeddedness. In 2023, she was awarded Best Paper at the Applied Business and Entrepreneurship Association International conference in Hawaii for her study on HR practices in SMEs, focusing on owner and firm characteristics.

Her research excellence was acknowledged in the GLOBE 2020 research project, a global study on leadership and cultural practices, and her 2023 textbook, which examines organisational development through a Caribbean lens, further contributes to the field by providing contextually relevant insights.

In addition to her direct research contributions, Dr Singh has led the development of the Faculty of Social Sciences' Multidisciplinary Research Grant. This initiative supports mental health awareness, training, and toolkit development, furthering socially engaged and solutions-oriented research.

WORKFORCE WELL-BEING AND ORGANISATIONAL EFFECTIVENESS

Dr Riann Singh's research in Organisational Sciences delves into human resource management and organisational behaviour, focusing on issues such as workplace mistreatment, dysfunctional retention, and organisational change. Her recent studies investigate how abusive supervision, workplace deviance, and job satisfaction impact employee well-being and organisational outcomes.

One of her main research areas focuses on "reluctant stayers" – employees who stay in their jobs because they have few other options but may exhibit counterproductive behaviours. This research challenges traditional views on retention by highlighting the potential negative impacts of employees who stay unwillingly. Data was gathered from three separate groups, totalling 663 employees across workplaces in Trinidad. The findings show that employees who feel stuck in their jobs are more likely to act out if they experience harsh treatment from their supervisors. If they believe rules are unfair, they may act rudely toward others, and when they feel the company has broken promises, they are more likely to ignore rules or act against the organisation.

Dr Singh's published works include 15 peer-reviewed impactful journal articles and three books, two of which are required reading in university courses in the last five years. Her work aims to equip organisations with evidence-based approaches to managing complex workplace issues, making it relevant to anyone interested in organisational effectiveness.

Most Outstanding Faculty Researcher - Social Sciences

Dr Wendell Wallace

Senior Lecturer, Department of Behavioural Sciences

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BIOGRAPHY

Dr Wendell Wallace is a Criminologist and a qualified Attorney-at-Law in Trinidad & Tobago and England and Wales. He is a Senior Lecturer in the Criminology and Criminal Justice programme at The University of the West Indies, St Augustine, and the coordinator of the Mediation Studies Unit. Dr Wallace is also a certified mediator with the Mediation Board of Trinidad & Tobago. His research focuses on policing, violence (domestic and school), mediation, gangs, and issues in higher education.

Among Dr Wallace's awards are the 2017 Frederic Milton Thrasher Award from the National Gang Crime Research Centre, and recognition for his contribution to Caribbean policing from the Association of Caribbean Commissioners of Police. His paper titled "Addressing the unmet educational needs of children and youth in detention in Trinidad & Tobago" won the award for Best Doctoral Paper from the Juvenile Justice Section of the Academy of Criminal Justice Sciences in 2014.

In addition to his academic work, Dr Wallace is the first Vice President of the Association of Caribbean Criminal Justice Practitioners, a member of the International Society for the Study of Rural Crime, and a Commissioner at the Elections and Boundaries Commission of Trinidad & Tobago.

CRIME, POLICING, AND PUBLIC SAFETY IN THE CARIBBEAN

Dr Wendell Wallace has focused on criminology and public safety in the Caribbean, producing over 30 peer-reviewed publications in the past five years. His work addresses topics such as public perceptions of policing, crime prevention, domestic violence, and the effects of COVID-19 on public health and safety. Key studies examine mediation in citizen-police conflicts, attitudes toward the death penalty, and domestic violence trends during the pandemic. These publications appear in journals such as the *Journal of Police and Criminal Psychology and the Journal of Family Violence*, contributing to the understanding of crime and safety issues in the region.

His published works include *The Palgrave Handbook of Caribbean Criminology and Caribbean Perspectives on Criminology and Criminal Justice*, both of which contribute to a framework for Caribbean criminology. Two papers of note look at men as victims of female perpetrated domestic violence in Trinidad & Tobago, and the lack of opportunities for male police constables in rural police departments in Trinidad & Tobago.

Dr Wallace has also supervised postgraduate students in Criminology, Criminal Justice, and Mediation Studies, overseeing thesis projects on topics like intimate partner violence, police legitimacy, and youth crime. His supervision has led to successful thesis completions and conference presentations, adding to discussions on criminology and social justice in the Caribbean.

In addition to academic research, Dr Wallace has shared his work with local institutions, including the Trinidad & Tobago Police Service, and schools across Trinidad & Tobago, making his research accessible to the community.

Most Outstanding Researcher - Centre/Institute/Unit

Dr Preeya Mohan

Senior Fellow, Sir Arthur Lewis Institute of Social and Economic Studies (SALISES)

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BIOGRAPHY

Dr Preeya Mohan is a top Caribbean researcher focused on sustainability issues that affect Small Island Developing States (SIDS). She is a Senior Fellow at the Sir Arthur Lewis Institute of Social and Economic Studies (SALISES) at The University of the West Indies, St Augustine, where she leads research on Caribbean development. Her work covers important areas like climate change impacts, resilience, climate finance, disaster management, knowledge economies, and innovation. Dr Mohan's research is widely respected, with her studies published in well-known journals like Climate Policy, Nature Climate Change, Energy Policy, Ecological Economics, and Entrepreneurship and Regional Development.

Her research goes beyond theory. With grants and awards from organisations like the Inter-American Development Bank, the International Development Research Centre, and Canada's Social Sciences Humanities Research Council, she has worked on projects aimed at promoting sustainable development and resilience in the Caribbean. Recently, Dr Mohan received the Saleemul Huq Memorial Scholarship and Award for her work on climate resilience, specifically looking at how the private sector responded after Hurricane Maria.

NEW ECONOMICS FOR A CHANGING CLIMATE

In the last five years, Dr Mohan has published 30 research articles in leading academic journals, addressing issues like disaster resilience, climate finance, and economic growth strategies for the Caribbean. Her research explains how natural disasters, such as hurricanes, affect tourism, government debt, and jobs, and gives Caribbean leaders data to help their countries recover and prepare for future challenges.

Dr Mohan's work on disaster economics has introduced innovative methodologies, such as a hurricane wind field model, to assess the macroeconomic impacts of disasters on GDP, public debt, and employment. Meanwhile, her work in climate finance identifies the main challenges these countries face in accessing funds for climate action. She has recommended ways to unlock new climate finance options, such as blended finance, blue-green carbon market initiatives, and debt-for-climate swaps, to help Caribbean nations meet their climate goals.

She has led research projects attracting a total of $1.5 million in international support from organizations such as the International Labour Organization and the Inter-American Development Bank, and has served on expert panels for the Fossil Fuel Non-Proliferation Treaty, highlight her dedication to finding practical ways for small island states to build sustainable economies.

THE HEAR AWARDS

Hurricane and Earthquake Alleviation Research

Hurricane and Earthquake Alleviation Research (HEAR) Award

Dr Karla Georges & Team
School of Veterinary Medicine

Regional coordination for disaster preparedness and mitigation activities to relieve animal suffering and safeguard the agricultural and livestock sector

Faculty of Medical Sciences

Contact: karla.georges@uwi.edu

BIOGRAPHY

The Disaster Risk Reduction and Management (DRRM) team at the UWI School of Veterinary Medicine (UWI-SVM) aims to safeguard the Caribbean's animal and livestock sectors from the impacts of natural disasters. Led by Dr Karla Georges, the team of researchers and experts from the UWI-SVM, the Trinidad & Tobago Veterinary Association, and other institutions, such as the Caribbean Agriculture Health and Food Safety Agency, The National Centre of Agricultural Health of Cuba, and the Centre for International Cooperation in Agricultural Research for Development (CIRAD), to form the Caribbean Animal Health and Veterinary Public Health network. This diverse group collaborates closely with the Office of Disaster Preparedness and Management of Trinidad & Tobago and various national and regional stakeholders to strengthen disaster preparedness and response efforts for the Caribbean's animal and livestock sectors.

Focused on preparedness, rapid response, and collaboration, the team's initiatives have included coordinating logistics to deliver critical supplies, such as the shipment of 75 tonnes of livestock feed to Grenada after Hurricane Beryl. They also facilitate regional workshops to enhance disaster risk reduction strategies. By establishing strong connections across public, private, and NGO sectors, the UWI-SVM team aims to build a more resilient agricultural sector in the Caribbean and contribute to a coordinated regional approach to disaster management.

PROTECTING ANIMALS, PROTECTING LIVELIHOODS: A NEW APPROACH TO DISASTER PREPAREDNESS

Most disaster relief efforts focus on human needs, yet animals also face significant impacts. Animals provide companionship, food security, and income, making their welfare critical to the livelihoods and well-being of their owners. The university's research team, in collaboration with the Caribbean Animal Health and Veterinary Public Health network (CaribVET), has developed disaster resilience strategies for the Caribbean's agricultural sector, specifically targeting the animal and livestock industries.

Effective animal relief requires various resources, with water and feed being essential. This project aims to strengthen disaster risk reduction in agriculture by fostering collaboration between plant and animal health sectors. During the 2021 Soufrière volcanic eruption, the team, led by UWI-SVM, coordinated efforts across 12 countries, delivering 50,000 gallons of water and 35 tonnes of food to support animal welfare in St Vincent & the Grenadines.

Beyond emergency responses, the team promotes long-term disaster preparedness through the Interreg Caraïbe V Programme, which applies the One Health approach to building resilience across plant and animal health sectors. With funding from CIRAD, the team has organised workshops to capture lessons from past events, assess stakeholder coordination, and develop tools for improved prevention and response.

Under the leadership of Dr Karla Georges, these initiatives have positioned Trinidad & Tobago as a regional leader in disaster mitigation for animal sectors, contributing to animal welfare, food security, and agricultural resilience. The team's research, including publications and training resources, supports ongoing advancements in disaster preparedness for the Caribbean.

Hurricane and Earthquake Alleviation Research (HEAR) Award
Special Mention for Innovation

Mr Manoj Kollam

Earthquake forecasting models through the Chaotic Chimp-Based African Vulture Optimisation Algorithm (CCAVOA) combined with CUDA-accelerated Levenberg-Marquardt Backpropagation Neural Networks (LM-BPNN)

PhD Scholar, Department of Electrical & Computer Engineering, Faculty of Engineering

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BIOGRAPHY

Earthquakes may occur less frequently than hurricanes in the Caribbean, but their effects can be far more devastating because of their sudden and unpredictable nature. Unlike hurricanes, predicting exactly when, where, and how powerful an earthquake will be remains a challenge for scientists. Mr Manoj Kollam, a doctoral candidate in the Department of Electrical & Computer Engineering hopes his research will bring us closer to accurate earthquake forecasting. His work focuses on using advanced computer models and machine learning techniques to make these predictions more precise.

Mr Kollam has presented his research at major international conferences, including IEEE iCCECE and IConETech, where he received the "Outstanding Research Paper Award" in 2020. His work has been published in various academic journals, such as WSEAS Transactions on Computers, with upcoming articles in Frontiers in Built Environment.

His expertise spans embedded systems, machine learning, and high-performance computing, with significant contributions in Android kernel porting, IoT health monitoring, and smart car security systems.

A SEISMIC SHIFT IN EARTHQUAKE FORECASTING

Mr Manoj Kollam's interdisciplinary research, combining elements of machine learning, parallel processing, and geosciences, may one day help to forecast many different natural disasters, potentially saving lives and protecting communities.

His current focus is on improving the accuracy of earthquake forecasts through the development of the innovative Chaotic Chimp-Based African Vulture Optimisation Algorithm (CCAVOA). CCAVOA, an algorithm used by machine learning, analyses earthquake data by mimicking the behaviour of animals searching for food, which helps the model identify the most critical data points and make more accurate predictions. CCAVOA is combined with CUDA technology, which allows many small processors to work together, speeding up calculations by 40%. Pairing CCAVOA with CUDA-accelerated Levenberg-Marquardt neural networks helps researchers select the data that matters and to calculate it quickly, resulting in a 98% accuracy rate in forecasting the occurrence, magnitude, and location of earthquakes.

This improved forecasting capability is highly valuable for the construction industry, where precise predictions can guide the design and retrofitting of earthquake-resistant buildings in high-risk areas. Enhanced accuracy also supports early warning systems and emergency planning, enabling timely evacuations, the shutdown of critical infrastructure, and the strategic positioning of emergency resources – all of which reduce casualties and improve response efficiency. Additionally, Mr Kollam's model is a valuable tool for public education, helping communities understand and prepare for earthquake risks.

Mr. Kollam's research provides essential tools and insights for improving preparedness in earthquake-prone areas, making it a valuable resource for those interested in disaster risk reduction and resilient infrastructure.

Hurricane and Earthquake Alleviation Research (HEAR) Award

Certificate of Recognition

Secondary School Student Research

Mr Khaion Maitland

Circular Housing for Hurricane Prone Areas

Student, Queens Royal College

BIOGRAPHY

From an early age, Mr Khaion Maitland has shown a strong interest in understanding the world around him, with family encouragement playing a key role. As a child, he often engaged in building and testing structures, from LEGO bridges to mud dams, refining his designs through trial and error. This early interest in engineering later developed alongside a keen fascination with natural disasters, leading him to explore how engineering could help mitigate the impact of these events on communities.

He started secondary school at Queen's Royal College (QRC) at just nine years old. There, in an effort to make friends with his older peers, he joined the STEM club, which reinforced his interest in engineering. Although he faced challenges in Additional Mathematics, Chemistry, and Physics, he worked diligently to succeed, knowing that these subjects were critical for their goals, and ultimately, his efforts paid off handsomely when he wrote exams at the end of form five.

Mr Maitland sees natural disasters as significant engineering challenges and is committed to finding solutions that build resilience against hurricanes, earthquakes, and other extreme events. His aim is to contribute to sustainable disaster mitigation through engineering research.

CIRCULAR HOUSING FOR HURRICANE PRONE AREAS.

In response to the Caribbean's vulnerability to hurricanes, Mr Khaion Maitland's research proposes developing circular, hurricane-resistant housing capable of withstanding Category 5 winds. The circular design deflects wind around the structure, reducing pressure imbalances and enhancing stability. This shape also reduces material costs by minimising the amount needed for construction.

Key features include a 6/12 pitched roof, which limits wind shear and minimises the risk of leaks. The housing uses high-strength framing lumber, impact-resistant glass, and multi-ply plywood sheathing to protect against wind and debris. Enhanced structural connections, including oversized truss hangers and metal supports running from roof to foundation, improve the building's resistance by evenly distributing wind forces across the structure.

The design also incorporates sustainability features. Reflective roofing, passive solar design, and high insulation levels help maintain indoor temperatures during power outages, which are common during hurricanes. This structure allows residents to focus on other preparations before a storm, as the design minimises the need for additional fortification.

He proposed that this circular housing concept has the potential to reduce damage from hurricanes in the Caribbean, providing a cost-effective and resilient solution for communities at risk from extreme weather events.

Hurricane and Earthquake Alleviation Research (HEAR) Award

Certificate of Recognition

Secondary School Student Research

Mr Joshua Maraj

Impact of Natural Disasters & Solutions

Student, Fatima College

BIOGRAPHY

Mr Joshua Maraj, a Form 2 student at Fatima College, has developed a strong interest in Geography, a subject that inspired him to pursue this research project. Over the past year, he has deepened his understanding of the field, building the confidence needed to undertake this work. This budding researcher believes that initiatives like the HEAR Award can spark student engagement and foster a greater interest in finding ways to mitigate the impact of natural disasters.

He emphasises the need for effective modification and mitigation policies for better mitigation of earthquake and hurricane impacts.

Abstract of Research

Young Mr Joshua Maraj's research presentation for the HEAR Awards examines strategies to mitigate the impacts of hurricanes and earthquakes. He presents a review of the causes and effects of these natural disasters, and emphasises solutions that support community resilience. He highlights the role of early warning systems, including advanced forecasting models and seismic sensors, to provide timely alerts that help protect lives and reduce damage.

Mr Maraj also focuses on resilient infrastructure design, recommending building practices tailored to withstand extreme conditions. Examples include elevated buildings in flood-prone areas, wind-resistant structures, and base isolation systems in earthquake-prone regions. The designs he identifies use materials and methods that can adapt to environmental changes, promoting long-term durability.

Mr Maraj's review presentation also addresses climate-smart agriculture practices aimed at securing food supplies during disasters. These practices include planting resilient crop varieties, managing water resources effectively, and implementing diversified farming systems to reduce risk.

Mr Andreas Antonopoulos

Ms Deboleena Paul

Special Recognition

Most Outstanding International/ Regional Research Project

Mr Andreas Antonopoulos & Ms Deboleena Paul

Documentary Film " CHEENEE"

Faculty of Humanities & Education

Contact:

andreas.antonopoulos@uwi.edu or
deboleena.paul@uwi.edu

BIOGRAPHIES

Mr Andreas Antonopoulos is a filmmaker who received his MFA in film from the Scottish Screen Academy with a full scholarship from the Greek scholarship foundation. He has worked in fiction, documentary, experimental, and animation films. He has produced film work in Greece, the UK, and Trinidad and Tobago, and his productions have been screened and awarded in several international film festivals. Mr Antonopoulos has lectured at Napier Edinburgh University and Leeds Beckett University in the UK, and The University of West Indies, St Augustine Campus.

Ms Deboleena Paul is a choreographer, performer, educator, and filmmaker. She has choreographed and performed pieces around the world, and has also lectured at many universities. Her films have also been screened and awarded at international film festivals. Ms Paul is the head of the Dance unit at The University of the West Indies, St Augustine Campus, and is the director of the *"Rhythms of Culture"* dance festival.

DOCUMENTING DANCE OF THE INDIAN DIASPORA IN TRINIDAD

The film *Cheenee* is an ethnographic project examining the Indian cultural heritage in Trinidad & Tobago. It combines traditional and contemporary elements within the documentary form, blending theoretical and practical approaches to expand the field of experimental ethnography.

The research involved interviews with descendants of early Indian immigrants, collecting memories and stories passed down through generations. Participants included Dharmie Deo, a centenarian recalling her family's efforts to preserve their language and customs, and Dr Raj Kumar Krishna Prasad, who shared his mother's experiences as an immigrant child. These accounts provide insights into the early lives and challenges faced by the Indian community.

Cheenee also explores cultural expressions such as dance and musical instrument making, highlighting their role in preserving heritage. The choreography combines Indian classical styles with contemporary techniques, influenced by international choreographers, to reflect the cultural fusion within the Trinidadian Indian community. Dance is used as a tool to convey historical and cultural narratives.

In its approach, *Cheenee* adopts a "decolonising perspective", challenging traditional, and potentially stereotypical portrayals of Caribbean Indian life that may be influenced by colonial perspectives. To present an authentic view, the film does not use any voice-over, allowing participants' stories to stand on their own, and encouraging viewers to engage directly with the material.

Cheenee was produced without any organisational funding, yet it has received regional and international recognition, screenings at festivals including the Doxa Documentary Film Festival in Canada and the Dhaka International Film Festival in Bangladesh, and won the Andrew Laszlo Award in Hungary.

CONFERENCE ABSTRACTS

THEME 1: Climate Resilience, Microbial Innovations and Economic Development for Sustainability

Microbiological Research for Regional Sustainability

Adesh Ramsubhag
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Advances in molecular techniques have revolutionised microbiology, offering powerful tools to explore the genetic characteristics, diversity, and functions of microorganisms. The application of these methods by UWI researchers has led to transformative discoveries with the potential to impact human health, the environment, and agriculture in the region. This presentation will highlight key findings from research focused on using genomics and metagenomics-based approaches to: (1) characterise indigenous environmental microbial diversity for drug discovery, (2) identify virulence factors and antimicrobial resistance genes in human and plant pathogens, and (3) assess microbial quality and source-tracking of pollution in water.

Managing the Resource Curse in a Small Petroleum Exporting Economy

Roger Hosein
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The presentation will be based on the book, *Managing the Resource Curse in a Small Petroleum Exporting Economy*, which offers a detailed analysis of Trinidad and Tobago's experience with the resource curse and Dutch Disease, examining how its dependence on the oil and gas sector has shaped its economic trajectory. By tracing the history of the petroleum sector from early exploration to modern developments, the book outlines the country's cyclical boom-bust dynamics, which have frequently led to economic stagnation, deindustrialisation, and labour productivity challenges. These cycles, driven by fluctuating oil and gas prices, have created structural weaknesses that hinder the competitiveness and growth of the non-energy sectors.

In addressing these issues, the book assesses policies aimed at managing resource rents, including the development and modification of the Heritage and Stabilisation Fund (HSF) and initiatives to support human capital through tertiary education programmes like Government Assistance for Tuition Expenses (GATE). Special focus is given to policy interventions that can bolster the non-energy tradable sector's competitiveness, such as improving ease of doing business, harnessing the economic contributions of Venezuelan migrants, and fostering local content in the energy sector.

The book provides strategic recommendations to reduce Trinidad and Tobago's dependency on fossil fuels by encouraging renewable energy adoption and enhancing economic resilience. It suggests a structural transformation, where economic diversification and sustainability are prioritised to ensure a stable, productive future. Intended for policymakers, academics and students, this work provides empirical insights and practical strategies for navigating the complexities of managing a small, resource-rich economy, offering a roadmap for sustainable development beyond the energy sector.

Sustainable Futures: Building Resilient Communities through Health, Infrastructure, and Clean Energy

Mohammed Shaddy, Nalini Dookie, Nkese Mc Shine, Priscilla Sahadeo, Randy Ramadhar Singh, Sasha Ramkhelawan, Sharlene Beharry, Zaffir Mohammed, Xsitaaz Chadee, Ricardo Clarke
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The Sustainable Futures research team aims to advance the United Nations Sustainable Development Goals (SDGs) by addressing region-specific challenges in fields such as infrastructure, water resource management, renewable energy, healthcare and food security. Robust methodologies were refined in collaboration with stakeholders including other UWI researchers, public institutions, industry partners and international colleagues. Research outputs encompass estimation of future reservoir volumes under different Representative Concentration Pathways (RCPs) and support water managers in identifying potential water shortages. The sustainable health project highlights that the prevalence of major cardiovascular disease (CVD) risk factors differed based on age and sex, suggesting the need for tailored intervention strategies and an accurate, user-friendly local CVD risk prediction tool. The modelling of greenhouse drying in the food security project can lead to improved dryer designs to enhance quality in the cocoa value chain. Additionally, the renewable energy research focuses on decreasing the risk and uncertainties in solar photovoltaic (PV) and wind power projects, and assessing the impacts of climate change on regional wind power. An overarching pathway for a just energy transition for Trinidad and Tobago has also been proposed, and can be applied to other hydrocarbon economies. The infrastructure project classifies the swelling potential of soils from Northern and Central Trinidad, and a soil swelling prediction model is being developed to aid in designing stable, durable structures. Through continued teamwork, knowledge-sharing, and stakeholder engagement, the Sustainable Futures research team is well-positioned to drive meaningful progress and shape a sustainable future for the country and the CARICOM region.

Connecting Climate Minds: A Shared Vision for the Climate Change and Mental Health Field

Emma L Lawrance[1,2,3], Jessica Newberry Le Vay[1], Sandeep B Maharaj[4] Natalie Greaves[5] Gillian Bristol[6], Connecting Climate Minds Core Team

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Research on climate change and mental health is a rapidly growing field but remains uncoordinated. The Connecting Climate Minds project, funded by Wellcome, aims to address this by creating connections between the seven Sustainable Development Goals regions for the development of globally and regionally relevant action agendas and communities of practice for climate change and mental health.

Climate change is increasingly recognised as a threat to mental health, compounding risks for poor mental health outcomes and destabilising the conditions needed for good mental health. For example, people living with mental health challenges are particularly vulnerable to dying during a heatwave, communities are experiencing ongoing distress and higher levels of mental health challenges in the aftermath of climate-related disasters, and higher or extreme temperatures have been associated with higher rates of suicide.

Action for a safer climate via mitigation and adaptation strategies is central to protecting mental health from

the threat of climate change while also creating an opportunity to foster the conditions for a world where no one is held back by mental health problems. While the climate change and mental health field is rapidly emerging to understand and respond to these needs, it remains disconnected, uneven and siloed.

Therefore, we wish to present the Research and Action Agenda for "Connecting Climate Minds."

Bridging the Climate Finance Gap: Challenges and Opportunities for Caribbean SIDS

Preeya Mohan
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Caribbean Small Island Developing States (SIDS) are disproportionately vulnerable to the intensifying impacts of climate change. This vulnerability is exacerbated by systemic inequalities rooted in historical colonialism and ongoing global economic structures. To mitigate these risks and build resilience, significant and sustained financial resources are imperative. However, a significant climate finance gap persists. This research aims to contribute to the development of more equitable and effective climate action strategies by advancing the understanding of climate finance challenges and opportunities. Through a content analysis of sixteen Caribbean SIDS Nationally Determined Contributions (NDCs), the research estimates a funding need of over US$51 billion for climate adaptation and mitigation. Yet, the region received a mere US$1.33 billion in international climate finance between 2010 and 2015, highlighting a stark disparity. The research examines several systemic factors that exacerbate this climate injustice, including high debt burdens, limited fiscal capacity, recurring disasters, and complex bureaucratic hurdles in accessing international climate finance. To address these challenges, the research explores innovative solutions, such as advocating for increased climate finance, building institutional capacity, developing bankable projects, and utilising innovative financing instruments like blended finance, green and blue bonds, climate insurance, and debt-for-climate swaps. By addressing these challenges and implementing innovative solutions, Caribbean SIDS can bridge the climate finance gap and build a more resilient and sustainable future.

THEME 2: Multidimensional Research in Building Resilience to Natural Disasters in SIDS

Advancing Resilience and Sustainable Development in the Eastern Caribbean through Geohazards Monitoring and Community Preparedness

Erouscilla Joseph
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The Seismic Research Centre (SRC) has made significant contributions to geophysical research and hazard management across the Eastern Caribbean through pioneering projects that safeguard communities and inform sustainable development. The SRC's management of the Montserrat Volcano Observatory, since 2008, supports the continuous monitoring, research and advisory services essential for public safety and economic resilience in Montserrat.

Complementing this, the Trinidad and Tobago Microzonation Project (TTMP) provides detailed seismic risk assessments essential for urban planning in densely populated areas. This research supports earthquake-resistant infrastructure development, offering a critical resource for government bodies and private developers seeking to mitigate seismic risks and enhance public safety.

The Volcano-Ready Communities Project in St Vincent further underscores the SRC's commitment to resilience-building. By enhancing disaster preparedness and response capacities, this project empowered local communities living near the volcano to respond effectively to the 2020/2021 La Soufrière eruption, preventing loss of life. Furthermore, the SRC built on the outcomes of this project to support post-eruption recovery efforts on-island.

Together, these initiatives highlight the SRC's critical role in advancing geophysical science, fostering regional resilience, and driving actionable recommendations for sustainable development in the region. Through these projects, the SRC remains a leader in regional geohazard monitoring and a valuable partner for research, development agencies, and private industry.

Evaluation of Geomechanical and Reservoir Properties of the Naparima Hill Formation: Implications for Unconventional Exploitation

Oshaine Blake, Uwaila Iyare, Ryan Ramsook, Daniel Faulkner, and Kerneese Ramjarrie
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The late cretaceous Naparima Hill Formation is the primary source of most of the oil and gas production in Trinidad during the last century. The Formation is also considered an unconventional reservoir. In recent years, hydrocarbon production has declined, and thus, there is an urgent need to explore new petroleum plays and enhance production using improved methods. Geomechanical and reservoir properties are crucial for the effective exploitation of unconventional shale reservoirs. This research aims to characterise the Naparima Hill Formation through petrographic, petrophysical, and geomechanical studies using outcrop samples. Experimental measurements of permeability, porosity, density, static elastic properties (Young's

modulus, Bulk modulus, and Poisson Ratio), P- and S-wave velocities and attenuation (Q-factor), unconfined compressive strength, confined compressive strengths, and tensile strength were conducted. The brittleness and fracability of the Formation were also assessed. Our results identified four lithofacies: siliceous-calcareous mudstone, calcareous mudstone, carbonate-rich siliceous mudstone, and siliceous mudstones. The permeability of the mudstones is very low, ranging from 0.01 to 1 µD, and the porosity ranges from 6 to 31%. The velocities and Q factors rose with increasing carbonate, bulk density, and burial depth, as well as decreasing clay, silica and porosity. The strength data showed weak to very hard consolidated rock. The mudstones experienced brittle, brittle-ductile transition and ductile failure behaviours with an increase in burial depth. The rocks were found to have low fracability. As the fracability is generally low, a high break-down pressure will be required to create hydraulic fractures in the Naparima Hill Formation.

Disaster Risk Reduction for Animal Health - Mobilising Response Beyond the Veterinary Community for Relief of Animal Suffering

Karla C. Georges[1,2], Patricia Bedford[2,3], Gavin Peters[2,4], Candice Sant[1,2], Lisa Benjamin[1,2], Marc Driscoll[1,5], Lila Khan[2,6], Damarys de las Nieves Montano Valle[7], Teola Noel[1,2], Members of the CaribVET Disaster subgroup, Caribbean Agri-enviroNment Group for Network Disaster Risk Reduction & Management (CANDO)[2] and Jennifer Pradel[2,8]

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Disaster relief efforts typically focus on humans, often overlooking animals that also suffer significant impacts. Animals play crucial roles as companions and in providing food security, income, and livelihoods for their owners. In the Caribbean, considering animal and plant health in Disaster Risk Reduction and Management (DRRM) is uncommon. However, efforts led by the CaribVET community, CIRAD, and the School of Veterinary Medicine at The University of the West Indies (UWI-SVM) have put animal care on the DRRM radar in Trinidad and Tobago. After the 2021 Soufriere eruption in St Vincent and the Grenadines (SVG), a stakeholder impact review highlighted the relief efforts by UWI-SVM and its partners, who shipped 50,000 tonnes of water and 35 tonnes of animal feed to SVG. This success helped UWI-SVM further mobilise support for Grenada in 2024, coordinating the shipment of 75 tonnes of livestock feed. Donors like National Flour Mills Ltd and Ramdial Transport, sensitised by previous relief efforts, facilitated this intervention. Contacts made through the UWI-SVM PROCINORTE-funded projects brought in stakeholders from the maritime industry, which enabled the timely shipment of the cargo to Grenada from the CARICOM jetty in Port of Spain. These initiatives have strengthened non-veterinary stakeholders' commitment, recognising and supporting the role of animal care in disaster recovery across the region.

THEME 3: Multi-Disciplinary Research Towards Science and Societal Advancement: Insights from Diverse Disciplines

Climate Change and Sustainable Development

Michelle Mycoo
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Climate change – one of the greatest threats to humankind's survival – is increasingly a talking point for peoples and governments as they come to grips with the unprecedented disruption of their economies, ecosystems and cultures. At the same time, development pathways pursued by many countries, including Caribbean islands, have undermined possibilities for attaining sustainable development goals in the near future, such as poverty alleviation, zero hunger, reduced inequalities, good health and well-being, sustainable cities, economic growth, industry and innovation, to name a few.

My research underscores the importance of science and evidence-based understanding and decision-making in the fields of climate change and land and infrastructure planning of urban settlements.

Contributions to the advancement of science in my discipline include authorship of scholarly publications, review of technical and scientific reports, scientific advice to Government Ministries and international and regional scientific bodies, delivery of keynote addresses, and conference presentations distilling scientific research findings in the disciplines of urban planning, geography, environmental science, climate change adaptation, water management and sustainability science.

Research impact is measured through my output in policymaking and decision-making by local communities, Caribbean governments, The International Science Council, The Intergovernmental Panel on Climate Change, and United Nations agencies (UNESCO, UNEP, UN-Habitat).

Emerging recommendations from research undertaken are the need for a multi-pronged strategy to urgently act on a planetary crisis (climate change), the adoption of a multi-disciplinary approach which recognises synergies among natural and social sciences and humanities to make progress toward attaining climate change adaptation and sustainable development, and the importance of co-designed research with local stakeholder input for successful implementation.

Advancing Disaster Resilience and Sustainable Resource Management in Caribbean SIDS: A Multidisciplinary Approach

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The interconnected nature of natural hazards presents distinct challenges for disaster resilience and sustainable resource management in Caribbean Small Island Developing States (SIDS). Addressing these challenges necessitates a multidisciplinary approach that acknowledges the interdependencies among

water, land, and agri-environmental systems. This research focuses on developing adaptive strategies to mitigate the impacts of climate change and reduce disaster risks in the Caribbean, advancing both practical and policy-oriented solutions. Key initiatives include flood risk assessments and the establishment of a Community Flood Early Warning Mechanism for Trinidad and Tobago, the development of an Integrated Water Resource Management Framework for Caribbean SIDS, and a Knowledge, Attitudes, and Practices (KAP) study on wastewater reuse in Trinidad and Tobago. Additional outputs include a water consumption assessment conducted during the COVID-19 pandemic and the application of nature-based solutions to enhance slope stability, mitigate land degradation, and assess salinity levels in vulnerable areas. Collectively, these efforts contribute to resilient and sustainable resource management practices, supporting climate adaptation and risk reduction across the region.

In Search of Evidence and Theory for Education Reform in the Anglophone Caribbean

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Two brave Anglophone Caribbean countries–Barbados and Trinidad and Tobago–have dared to imagine a future education system without the colonial legacy of early selection and tracking at 11+. Such an intention is consistent with recent policy reforms in Europe but is unlikely to be as easily achieved within the Caribbean region. One of the constraints, as revealed in the Trinidad and Tobago evidence-informed approach to reform (The SEA Concordat Committee report), is the lack of contextual theory and the absence of working prototypes necessary to support change in a complex policy ecosystem. The research agenda adopted by the author is guided by these concerns. The following broad research questions were implemented to provide needed evidence for improved policy choices:

1. How do you measure the status and progress of education systems in the Anglophone Caribbean, where early tracking is normalised?
2. Do plural notions of fairness exist within multicultural societies like Trinidad and Tobago, explaining conflicting views on choices for the education system?
3. How can theory (including decolonisation theories) be better used to guide the development of new student assessment systems capable of supporting high performing education systems in the Caribbean?
4. What prototypes of classroom assessment can be developed to ensure that everyone is able to learn successfully?

The research strategies used to answer these questions ranged from big data studies to focused classroom interventions and included large-scale and mixed methods quantitative approaches and small-scale intervention and action research.

De-Colonising Copyright Law

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This paper seeks to critically assess whether the copyright laws adopted by developing English-speaking Commonwealth countries are fit for purpose and, if not, how the copyright framework should be reshaped to better account for the realities of such countries. Historically, the development of copyright laws in the Commonwealth was guided by international treaties and the jurisprudence of the former colonisers, namely, the United Kingdom. As a result, the copyright laws that have been imposed on developing Commonwealth countries do not necessarily reflect their needs and realities.

Therefore, this paper will conduct a TWAIL (third world approaches to international law) analysis to determine the shortcomings of the existing international and domestic copyright law frameworks and, in response, propose a more functional, fair and sustainable approach that better represents the interests and needs present in developing Commonwealth countries. Thus, this paper will:

1. Identify the key interests and needs that are not currently accounted for in the international copyright treaties;
2. Demonstrate the harms caused by Commonwealth copyright systems; and
3. Propose the reformation of copyright law to better account for the interests and realities of developing Commonwealth copyright countries.

Preventing both Communicable and Non-Communicable Diseases in Trinidad and Tobago: Implications for Policy Change

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Aim:
The dual burden of communicable and non-communicable diseases (NCDs) remains a challenge in Trinidad and Tobago (T&T). This abstract focuses on communicable diseases (COVID-19 and Human Papilloma Virus (HPV)) and NCDs (hypertension and diabetes). HPV remains the main cause of cervical cancer in T&T, with vaccination rates below 20%. At least half of the diabetics and hypertensives in T&T are uncontrolled.

Methods:
A qualitative study across Trinidad and Tobago explored reasons for COVID-19 vaccine hesitancy, while a quantitative parental survey investigated HPV vaccine hesitancy. Cross-sectional studies examined primary care physicians' (PCP) barriers to prescribing insulin and antihypertensive medication adherence among patients.

Results:
Common themes for COVID-19 vaccine hesitancy included fear, inefficacy, information inadequacy, perceived susceptibility, mistrust, herbal alternatives, and religious hesitations. In the HPV study, 81% of parents knew HPV's link to cervical cancer, 40% were uncertain about vaccine safety, and only 45% were willing to vaccinate. Nearly 40% of PCPs reported inadequate patient education on insulin initiation, half lacked sufficient consultation time, and 40% lacked HbA1c results; less than 7% had access to rapid-acting

insulin. Of 225 hypertensive patients, 58% had low adherence, and 73% were uncontrolled. Adverse effects, herbal use, and medication fears lowered adherence.

Conclusions:
Vaccine hesitancy in T&T requires culturally tailored public health education campaigns to counteract fear and misinformation. Enhancing primary care with longer consultations, appointment scheduling, timely HbA1c results, and insulin options could improve diabetes care. Screening for herbal use and expanding the national chronic disease assistance program could enhance hypertension control.

Copper Chalcogenide Nanostructures and Microstructures: Cost-effective and Environmentally Benign Functional and Sustainable Materials for Solar Energy Applications

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In response to finding alternative and renewable energy sources, the field of solar energy with technologies for photovoltaics (PVs), solar-electrochemical energy storage and solar windows has been expanding. This involves developing a range of semiconducting nanomaterials with optimised solar energy capture, conversion and loss functionality for improved, efficient, cost-effective and sustainable use. Of the plethora of materials, the earth's abundant copper-based transition metal dichalcogenides (TMDs), including two-dimensional (2D) nanomaterials, are attractive because of their tunable electronic properties. However, in several TMDs such as copper indium sulphide (CIS), copper antimony sulphide (CAS) and the 2D copper-molybdenum sulphide (CMS) and copper sulphide, there are challenges in controllable, scalable preparation of their nanostructures and microstructures for optoelectronic devices.

This presentation outlines our materials chemistry structure–property approach to addressing this, involving developing methodologies to effectively optimise the optoelectronic properties of Cu-TMD nano- and microstructures by controlling structure, morphology and composition. For example, I-phase multilayered 2D CMS nanosheets and nanorods display tunable bandgaps (1.6 – 2.6 eV), i.e. wide spectral distribution, useful for solar energy capture and conversion. Additionally, non-stoichiometric famatinite phase CAS nanosheets prepared at notably low, sustainable temperatures (60 – 70 °C) display tunable bandgaps (1.9 – 2.2 eV) with higher temperatures inducing highly crystalline 2D nanosheets with improved properties. Additionally, non-stoichiometric tetrahedrite phase CAS microstructured thin films with Zn(II) ion impurity defects display tunable bandgaps (1.7 – 2.1 eV). We also prepared tunable, highly emissive copper-rich CIS nanoparticles as candidates for nanocomposite luminescent down-shifting films for use as solar windows in greenhouse systems to improve crop yields. As a novel approach, we demonstrated the growth of large domain-sized (30 – 500 nm) 2D nanosheets of copper sulphide (CuxSy) with optimised functionality. Collectively, data from advanced characterisation tools such as X-ray diffraction and spectroscopy, electron microscopy, optical spectroscopy and electrochemical analyses suggest optical and pseudocapacitance properties implicated by materials characteristics of composition, defects, structure, and morphology, which are dependent on the conditions of materials preparation.

Overall, our methodologies to strategically manipulate the optoelectronic properties of these copper-based TMD nanostructures and microstructured thin films that can be easily processed into devices using inexpensive substrates – flexible transparent plastics, glass or thin metal sheets, show their potential for wide-scale and cost-effective-applications such as efficient PV cells, pseudocapacitive electrodes for energy storage devices and luminescent down-shifting solar windows.

Dysfunctional Employee Retention in the Workplace and the Associated Destructive Organisational Behaviours: The roles of Abusive Supervision, Procedural Injustice and Psychological Contract Breach

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The issue of dysfunctional employee retention, which challenges the traditional assumption that once employees stay, they add value to organisations, is an emerging area within the organisational sciences. Within the contemporary workplace, 'reluctant/involuntary stayers' (i.e. employees who unwillingly stay in their jobs because of limited job opportunities or embeddedness in their communities) are fast becoming the biggest employee group. The behavioural tendencies of such employees and the potentially destructive and costly impact on organisations are vastly under-researched.

Three independent research studies were conducted to probe the response of reluctant stayers to abusive supervision, procedural injustice, and psychological contract breaches in the workplace under specific conditions. Quantitative data were collected from three independent samples (228, 204, 231) of 663 employees across workplaces in Trinidad. The results indicate that when faced with abusive supervision, reluctant stayers are more likely to engage in workplace deviance, whereas when they perceive procedural injustice exists in the workplace, they are likely to engage in workplace incivility. Additionally, when perceived psychological contract breaches exist, stayers are more likely to engage in organisational deviance.

These findings have costly implications from managerial and business perspectives since workplace deviance, incivility, and organisational deviance are associated with exorbitant direct and indirect costs for employees and organisations and are classified as destructive organisational behaviours. As 'reluctant stayers' dominant contemporary workplaces, leaders must strive even harder to maximise the value of their most valuable assets—their employees and, more so, those who involuntarily stay in their jobs. Further recommendations are discussed.

Answering the Call for the Development of a Caribbean Criminology in the 21st Century

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The field of criminology is not a new discipline; however, it has continued to evolve over time. As an academic discipline, criminology contains several traditional as well as newer areas of focus, including, but not limited to, anthropological criminology, critical criminology, feminist criminology and rural criminology. Instructively, despite the continued and exponential increase in sub-disciplines within criminology, the focus and development of 'Caribbean criminology' are conspicuously absent. As a result of this lacuna, the author of this abstract has sought to answer the call made by Ken Pryce (1976) for the development of Caribbean criminology. Critical to answering this call is research by the author on domestic violence, policing and Caribbean criminology by way of three research components namely:

1. Suffering in Silence, Shame, Seclusion, and Invisibility: Men as Victims of Female Perpetrated Domestic Violence in Trinidad and Tobago;
2. Gender and Rural Policing: Lack of Opportunities for Male Police Constables in Rural Police Departments in Trinidad and Tobago; and
3. The Palgrave Handbook of Caribbean Criminology.

Emanating from the aforementioned scholarship is the need for further research on criminological issues affecting the region and Caribbean theorising that is premised on the notion that the Caribbean is a phrontistery for new research.

Biochemical and Genomic Features of Hydrocarbonoclastic Microbes in Trinidad

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Oil spills pose significant environmental and socioeconomic challenges globally, with petroleum and other chemical compounds emerging as priority pollutants due to their ecotoxicity and health implications. This research harnesses biotechnology by utilising oil-degrading microbes known as hydrocarbonoclastic microbes (HCMs) as a sustainable solution for pollution detoxification. Through extensive genomic analysis of individual organisms, we explore the physiological adaptations of HCMs, assessing genetic diversity and identifying critical genes responsible for oil degradation. Our study introduces novel microbial strains for bioremediation strategies, integrating biochemical, genetic, and bioinformatic analyses to elucidate the structural and functional characteristics of these microbes. Notably, we address the lack of genomic data from chronically polluted regions, focusing on South Trinidad, where our sampling efforts revealed rich microbial diversity, including previously uncharacterised hydrocarbonoclastic fungi and bacteria. We identified a range of genes associated with pollutant degradation and enzymes with potential biotechnological applications, underscoring the role of these microbes as effective agents for bioremediation. This research represents the first genomic study of HCMs in Trinidad, laying the groundwork for the development of targeted bioremediation strategies and revealing the broader biotechnological potential of these organisms beyond environmental cleanup, such as their use in U.S. billion-dollar enzyme markets. By contributing valuable data and insights, our findings aim to enhance efforts in managing oil spill impacts, particularly in tropical regions.

THEME 4: Research Insights for Community Solutions

Research Impact of the Department of Basic Veterinary Sciences, School of Veterinary Medicine

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The Department of Basic Veterinary Sciences (DBVS) at The University of the West Indies, St Augustine, has made significant advancements in public health, veterinary science, and environmental resilience in the Caribbean over the past five years. A cornerstone achievement is the establishment of the SARS-CoV-2 diagnostic laboratory, which provided essential COVID-19 testing during the pandemic and continues to bolster Trinidad and Tobago's public health infrastructure. This lab has not only improved diagnostic capabilities but also enhanced response readiness for future health crises. In addition, the DBVS has been instrumental in launching the Climate Change and Health Leaders Fellowship Program, which equips professionals across the Caribbean with the skills to address climate-related health issues, thereby fostering long-term resilience in regional health systems. Through partnerships with international agencies, the DBVS has also pioneered early warning systems for African Swine Fever (ASF) and Classical Swine Fever (CSF), safeguarding livestock and promoting food security within the Caribbean. Further research by the DBVS on food safety, zoonotic disease prevention, and the control of aquatic pathogens has opened pathways for consultancy and training services, benefiting local industries and enhancing community awareness. The department's innovative approaches to veterinary research and its dedication to societal and environmental health exemplify leadership in the field. The DBVS's collaborative projects focus on environmental sustainability and commitment to public health and continue to reinforce its role as a pivotal contributor to resilience and well-being in the Caribbean.

WISH Upon a Star: Astronomy for the Underserved Communities

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The Universe belongs to us all equally. Yet, there is a lack of equity regarding access to Astronomy. We have worked with two underserved segments of the community in Trinidad and Tobago to change this:

1. Children in homes in Trinidad and Tobago
2. Blind persons in the community

Towards our goals for science mentorship and goodwill to children in the homes – the Women In Science for Hope (W.I.S.H.) Foundation was established in 2020 and is a registered NGO. Within the limitations of COVID-19, we distributed science kits and books and held competitions to recognise events such as Women and Girls in Astronomy and Science. A magazine, "WISH upon a Star", is published annually just for the children. We received a grant from the International Astronomical Union (IAU) to produce a low-tech astronomy kit, including the publishing of the book, "Our Caribbean Sky". We then received another grant from the Women and Girls in Astronomy Program (WGAP) to bring astronomy and binoculars to the children in the homes—one of just ten in the Western Hemisphere. This project was one of three selected for presentation at the major American Astronomy Society meeting in the USA.

Towards our goals of reaching out to the blind community, the Caribbean Astronomy for Inclusion (CAI) was established. We are developing tactile materials and using technology to convert light into sound to enable blind persons to hear things like an eclipse while assisting in developing an Audio universe version for the Caribbean from Newcastle University.

Developing a Novel Machine Learning Algorithm to Forecast the Earthquake Using Parallel Processing

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Earthquakes result from sudden fault-line shifts due to stress buildup in the Earth's crust. Predicting earthquakes deterministically is challenging due to their non-linear nature. To improve prediction accuracy, it is crucial to analyse a vast database of complex variables, which parallel GPU-based computing can efficiently handle. This study integrates machine learning (ML) with parallel processing, using Compute Unified Device Architecture (CUDA) to enhance forecasting performance, accuracy, and efficiency over traditional models. The model features a novel two-part approach: the Chaotic Chimp Based African Vulture Optimisation Algorithm (CCAVOA) for feature selection, achieving a low mean squared error (MSE) of 0.08 and high convergence rates, and the Improved Seagull Optimisation Algorithm (ISOA) for accuracy enhancement in CUDA-accelerated Levenberg-Marquardt backpropagation neural networks (LM-BPNN). This approach leverages hybrid parallelism, combining data and model parallelism to optimise performance.

The algorithm was developed using the CUDA, C, and Python platforms. The model's performance was evaluated through various metrics, such as accuracy, precision, recall, specificity, and root mean square error. Results show 98% accuracy, with ISO-LMBPNN, the computing speeds/throughput on CPU improving by 25% and on GPU by 40% over the existing LM-BPNN algorithm for earthquake data. This combination of ML and CUDA-based parallelism demonstrates significant advances in earthquake prediction capabilities.

Film Form and Choreography Inside the Indian Classical and Folk Dance in Relation to Observation Documentary

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The title of the research project is Film Form and Choreography Inside the Indian: Classical and Folk Dance in Relation to Observation Documentary. The output of the research is a sixty-one-minute documentary entitled Cheenee.

Cheenee is a documentary film that explores the journey of Indian immigrants in the Caribbean. This insightful documentary delves into the hidden history of Trinidad and Tobago, tracing the journey of Indian immigrants forced into indentured servitude during the 19th century. The film artfully blends archival photography, contemporary dance, and personal narratives to showcase the rich Indo-Caribbean culture and its architectural legacy. It transcends traditional documentary storytelling by integrating dance, music, and observational techniques to create a unique cinematic experience.

The project researches the integration of film and dance as a medium of visual communication in relation to ethnography and observational documentary. Cheenee has been screened and awarded in several international film festivals.

FACULTY RESEARCH HIGHLIGHTS - 2023/2024

FACULTY OF ENGINEERING

- Researching the effects of injecting CO_2 into depleted oil and gas reservoirs, aiming to improve oil recovery and support carbon capture efforts
- Developing sustainable packaging from local plant waste to reduce plastic use and promote a circular economy
- Exploring ways to repurpose waste materials like plastic bottles and tires, using 3D printing to create useful products and reduce landfill waste

FACULTY OF FOOD & AGRICULTURE

- Caribbean Small Island Developing States (SIDS) Multicountry Soil Management Initiative for Integrated Landscape Restoration and Sustainable Food Systems: Phase 1 (CSIDS-SOILCARE Phase 1)
- Regional Sweet Potato Industry Value Chain Enhancement and Technology Transfer Project in St Vincent and the Grenadines and Guyana
- Black Soldier Fly Larvae Meal as a Sustainable Protein Alternative for Animal Diet

FACULTY OF HUMANITIES & EDUCATION

- The Faculty produced The UWI Student Volunteer Initiative with the Migrant Community
- Communication Studies partnered with the Environmental Management Authority to create all the communication materials for their climate change project
- Over 100 presentations at conferences, seminars & workshops

FACULTY OF LAW

- The UWI St Augustine Law Journal (UWISALJ) publishing key research in law is made available freely on the Faculty's website
- Virtual Seminar 2023: Exploring the digital frontier of cross-border trade
- The 4th UWI Oil and Gas Law Conference: Towards a Just Transition - June 2024
- Intellectual Property & Innovation Workshop - July 2024

FACULTY OF SOCIAL SCIENCES

- Over 200 Publications and presentations
- 5 Research Grants valued at over $100K
- 6 MOUs signed - all aligned with the Faculty's vision to be socially engaged and solutions-oriented

FACULTY OF SCIENCE & TECHNOLOGY

- SWARNETT: DISASTER MANAGEMENT APP - a resilient ad hoc communications network, connecting communities during disasters
- IDENTIFYING CRIME HOTSPOTS IN T&T - using Statistics, Graph Theory and Public Health to more precisely allocate crime-fighting resources
- CARING FOR OUR ECOSYSTEM - studying human impacts on, and the restoration of natural ecosystems

FACULTY OF MEDICAL SCIENCES

- Comparing the effect of herbal and conventional medication in managing hypertension
- Agouti production and management for alternative nutrition sources
- Textbook of Surgery for Medical Students a comprehensive, indigenous guide

INSTITUTE FOR GENDER & DEVELOPMENT STUDIES (IGDS)

- A Sexual Culture of justice: Strengthening LGBTQI & GBV Partnerships, Capacity & Efficacy to Promote & Protect Rights in T&T
- Adolescent Unions in Six Caribbean Countries: Drivers, Manifestations and Consequences
- National Bush and Forest Fire Policy for T&T (Draft): A civil-society-led climate change mitigation policy that confronts the environmental and public policy realities of T&T

INSTITUTE OF INTERNATIONAL RELATIONS (IIR)

- SIDS 4 and the Caribbean's Diplomatic Agenda
- The multi-dimensional crisis in Haiti
- Israel-Palestine War – Perspectives from the Caribbean

SIR ARTHUR LEWIS INSTITUTE FOR SOCIAL & ECONOMIC STUDIES (SALISES)

- Green growth and climate finance
- Caribbean Research Cluster for population and sustainable development
- Disabilities Studies Research Cluster

The School for Graduate Studies & Research

Graduate Studies and Research has facilitated the Faculties to strengthen the following collaborations with the industry partners:

1. National Flour Mills collaboration with the Faculty of Food and Agriculture to develop and commercialise feed and feedstuffs through Research & Development.

2. Cocoa Research Centre's collaboration with estate owner(s) in the establishment of Model Cocoa Orchard in Cunupia.

3. Graduate Studies and Research is leading the Development of Research Agenda for the UWI St Augustine Campus to guide internal and external stakeholders for the next five years (2025–2030) that aligns with national, regional and international policy documents.

For research and institutional collaboration, write to
Professor Duraisamy Saravanakumar, Director, Graduate Studies and Research
at **STA-GSR.Director@uwi.edu** or **saravanakumar.duraisamy@uwi.edu**

The UWI St Augustine Research Agenda

What is the UWI STA Campus Research Agenda?

The UWI St Augustine Campus Research Agenda is a strategic framework outlining the key research priorities for The University of the West Indies (UWI), St Augustine Campus over the next five years (2025–2030). The UWI STA Research Agenda is intended to guide researchers, inform decision makers, and support funding agencies in driving impactful research that addresses national, regional, and global challenges.

Why Develop the UWI STA Research Agenda?

The development of the UWI STA Research Agenda is necessary for:

- Strategic Alignment: By identifying priority areas of research, the agenda ensures that campus's research aligns with national development goals, international commitments like the SDGs, and regional imperatives such as environmental sustainability, public health, and economic diversification.
- Optimising Resources and Impact: The agenda will help The University focus its resources on high-impact research areas, enabling more strategic investments in research and development.
- Fostering Collaboration: It provides a framework to foster interdisciplinary research and partnerships with public and private sector stakeholders, improving the relevance and application of research findings.
- Supporting Policy Development: Research findings will be used to support evidence-informed decision making to tackle pressing societal challenges in areas such as health, food security, education, climate change, socio-economic development, and the advancement of digitisation and commercialisation.

Who Will Benefit from the UWI STA Research Agenda?

The UWI STA Research Agenda will have a wide range of beneficiaries, including:

- Researchers: Faculty members will benefit from a focused research strategy that encourages interdisciplinary collaboration, increases access to funding, and enhances the visibility of their work.
- Funding Agencies: The agenda will make it easier for funding agencies to identify key areas for investment, ensuring that their resources are directed towards impactful research that aligns with both national priorities and global development goals.
- Decision Makers: By aligning research priorities with national policies and regional development strategies, decision makers will gain access to timely, evidence-based insights that can shape decisions on priority national issues.
- Graduate Students: The agenda will provide clearer research pathways, better guidance for thesis topics, and access to relevant projects that align with national and international priorities.

How Will the UWI St Augustine Research Agenda Be Developed?

The development of the Campus research agenda will be an inclusive, collaborative process, involving input from key internal and external stakeholders to ensure that it is comprehensive and impactful. The process will be led by the Faculties of Food & Agriculture, Science & Technology, Engineering, Medical Sciences, Humanities & Education, Law, Sport and Social Sciences at the St Augustine Campus, working closely with all public and private sector partners, and the broader academic community. The Process Map, as detailed on the next page, will guide the activities to develop the Campus research agenda and implementation in 2025.

Process Map for Developing the UWI STA Research Agenda 2025-2030

PHASES	KEY HIGH-LEVEL ACTIVITIES	METHODS & TOOLS	TIMELINE
PHASE 1 Preparatory Work	1a. Identify leadership/ focal points at the Faculty. 1b. Outline roles and responsibilities in Terms of Reference.	1. Working Group 2. Steering Committee	**Nov 2024 – Feb 2025** **Progress Update Meeting: Feb 2025**
	1c. Develop Stakeholder Map.	1. Stakeholder Map	
	1d. Convene Working Group & Steering Committee with representation from key stakeholders.	1. Letters of Invitation seeking representatives from key stakeholders	
	1e. Conduct sensitisation & awareness campaigns to ensure there is buy-in from stakeholders.	1. Consultations 2. Emails 3. Infographics (with the support from M&C)	
	1f. Collaborative development of a proposal that includes details on an agreed upon methodology, work plan and M&E framework, and including a timeline with Gantt chart, meeting schedule, etc.	1. Proposal Template 2. Working Sessions 3. Online (Shared) Document	
PHASE 2 Priority Setting	2a. Conduct Situational Analysis. Identification of existing research as well as gaps in research. Generation of the initial list of research areas.	1. Desk Review – collate the relevant background documents including national development strategy and relevant Ministries' strategic plan/Sustainable Development Goals and changing trends in research with the advent of Artificial Intelligence etc. 2. Literature Review 3. Key Informant Interviews 4. Focus Group Discussions 5. Stakeholder Consultations	**Mar 2025 – Aug 2025** **Progress Update Meetings: Apr 2025 & Jun 2025**
	2b. Build consensus on the prioritisation criteria to be used and a system for scoring.	1. Brainstorming sessions 2. Multi-voting 3. Nominal group technique 4. Roundtable discussions 5. Prioritisation matrices	
	2c. Rating and Ranking the Research Topics.	1. Delphi Methodology either in-person meeting(s) or online questionnaires	

PHASES	KEY HIGH-LEVEL ACTIVITIES	METHODS & TOOLS	TIMELINE
PHASE 3 Validation and Endorsement	3a. Convene stakeholders to assess the: • relevance, inclusiveness, and transparency of the priority-setting process. • relevant, implementable, and completeness of the penultimate list of research priorities. 3b. Publish and disseminate the research agenda. 3c. Promote the adoption of the research agenda.	1. Stakeholder consultations 2. Surveys 3. Commitment letters	**Sept 2025**
PHASE 4 Implementation	4a. Convene key stakeholders including private sector & funding bodies to identify resources. 4b. Convene interdisciplinary and multi-stakeholder teams that can collaboratively develop research protocols and conduct research. 4c. Establish mechanisms to disseminate and utilise research findings. 4d. Monitor uptake.	1. Stakeholder consultations 2. Working Group Meetings 3. Research Days 4. Conferences 5. Policy Briefs	**Nov 2025 – Nov 2030**
PHASE 5 Monitoring and Evaluation	5a. Monitor and evaluate the process of implementing the research agenda. 5b. Assess whether the research findings are informing decision making. 5c. Evaluate impact (possible using data from situation analysis as a baseline).	1. M&E Framework including a list of indicators	**Nov 2028 & Nov 2030**

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