The Artificial Intelligence Innovation Centre

at

The University of the West Indies, St. Augustine

Partnerships

The Artificial Intelligence Innovation Centre,
The University of the West Indies,
St Augustine, Trinidad and Tobago
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Executive Director's Message

Powered by Partnerships

Every pathway is powered by partnerships. This is a central theme that drives the Artificial Intelligence Innovation Centre's vision and purpose. It is clear that no single institution, discipline, or country can build a better world on its own. Progress requires shared knowledge, pooled resources, and a collective will to transform ideas into solutions. Partnerships create the bridges between research and industry, between the academy and communities, between the Caribbean and the wider world. They are how we ensure that AI development is cutting-edge, ethical, contextual, and impactful for the societies we serve. Through collaboration, we can lower barriers to innovation, democratize access to tools, and create technologies that are globally competitive yet rooted in our unique regional realities. We invite you to join us as co-creators of a future. Together, we can shape a resilient, prosperous, and just digital future.

Craig J. Ramlal

Every pathway to progress is powered by partnerships.

Centre Summary

The Artificial Intelligence Innovation Centre is a University of the West Indies Centre established at the St. Augustine Campus. Initially founded in 2018 as the Intelligent Systems Lab, the Centre now has 42[1] members. The AIIC currently partners with over 20[2] institutions locally, regionally and internationally and hosts over 30[2] ongoing projects. These cover the application of AI to diverse areas such as Sustainability, Agriculture and Climate Resilience and, Digital Humanities. We also engage in the development of Foundational AI models and architectures, focusing on low resource computing solutions.

Mission

The Artificial Intelligence Innovation Centre aims to advance research and innovation in intelligent systems integrated-enabling technologies. The Centre will create an environment of global excellence and intellectual leadership in the areas of artificial intelligence, intelligent systems, autonomous systems, and advanced technologies.

Strategic Objectives

1. Driving cutting-edge research in artificial intelligence, intelligent systems, and enabling technologies by fostering innovation and multi-disciplinary collaboration, developing safe and impactful applications, and contributing to global intellectual leadership.
2. Shaping and guiding regional policy through research-driven insights, targeted education, public discourse, and academic symposia/conferences.
3. Serving as a strategic outreach and innovation hub that connects UWI's resources to regional and international technology industries through consulting, pilot projects, multimedia engagement, and technical services.
4. Generating revenue for the UWI through product and service commercialization, training and research activities.
5. Establishing a robust, sustainable, commercialization and innovation-driven research agenda through partnerships, competitive grants, regional and international collaborations.
6. Partnering with the UWI's faculties and departments for the creation of educational programmes that integrate or develop AI.

[1] As of 13th September 2025.
[2] As of 1st August 2025.

Prof. Arokia Nathan

Chair of the Scientific Council

Prof. Nathan is a Bye-Fellow at Darwin College, University of Cambridge, UK and Founder CTO of Visban Corporation, Tokyo, Japan and the president of IEEE Electron Devices Society. He is the founder of Ignis Innovation, Waterloo, Canada, co-founder of Cambridge Touch Technologies, UK and Visban Networks Limited. , Prior he served as the Chair of Photonic Systems and Displays and Professor of Electrical Engineering at Cambridge University, the Canada Research Chair in Nanoscale Elastic at UW, the NSERC E.W.R. Steacie Fellowship, and the DALSA/NSERC Industrial Research Chair.

In 2003, he received the E.W.R Steacie Award, prestigious recognition from the National Science and Engineering Research Council of Canada. In 2021, he received the IEEE J.J. Ebers Award, the highest recognition from the IEEE Electron Devices Society. His other recognitions include election as a Fellow of the UK's Royal Academy of Engineering in 2021 and as a Fellow of IEEE, Society of Information Display, and IET. For his role in establishing University of Waterloo as a global center of excellence in thin film electronics, he was awarded a Doctor of Science (honoris causa) in 2019 and election to the Canadian Academy of Engineering in 2023.

Dr. Craig Ramlal

Chair of the Executive Committee

Dr. Ramlal is the Executive Director of the Artificial Intelligence Innovation Centre, at the UWI and the Head of the Control Systems Group in the Department of Electrical and Computer Engineering, Faculty of Engineering, also at the UWI, St. Augustine. In 2023, the United Nations recognized him as a preeminent AI leader, appointing him to the United Nations Secretary-General's High-Level Advisory Body on Artificial Intelligence. The body's recommendations on governing AI for humanity formed Objective 5 of the Global Digital Compact, which was adopted by member states during the 79th UN General Assembly. He currently serves as the Chair of the CTU's Caribbean Taskforce on AI, lead on the IEEE Global Initiative on the Ethics of Autonomous and Intelligent Systems 2.0, on the CARICOM's Security Strategy Steering Committee, as an advisor to the CXC on regional AI education policy matters and as a Core Working Group Member of the World Digital Governance Initiative.

Previously, he served on CDB's technical subcommittee on IRC/RDA, collaborated with CARICOM IMPACS on the regionally adopted Autonomous Weapon Systems Declaration, and acted as a regional coordinator for open data strategy development across Caribbean nations in partnership with the IDRC and NASA.

Prof. Bhesham Ramlal

Chair of the Advisory Board

Prof. Ramlal is the Dean of the Faculty of Engineering and Professor of Geospatial Information Engineering at the University of the West Indies, St. Augustine. An internationally recognized leader in spatial data infrastructures, geospatial policy, and participatory decision systems, he has advanced national and regional initiatives on climate change adaptation, disaster risk reduction, and digital mapping.

He has chaired the Government of Trinidad and Tobago's National Spatial Data Infrastructure Committee, led the National Spatial Data Infrastructure Council, and served on expert committees addressing national security, climate vulnerability, and development policy. Internationally, he has contributed to global standards through the International Federation of Surveyors and advised organizations across academia, government, and civil society. Prof. Ramlal holds a PhD in Spatial Information Science and Engineering from the University of Maine, alongside degrees from the International Institute for Aerospace Survey and Earth Sciences and UWI, and has authored numerous publications and conference contributions, cementing his role as a pioneer of geospatial innovation and governance in the Caribbean.

Organizational Structure

Scientific Council

Arokia Nathan (chair)

- M Jamal Deen, Senior Canada Research Chair, Fellow of the Royal Society of Canada, China Academy of Sciences & India's National Academy of Sciences
- Clyde Seepersad, Senior Vice President and General Manager, Linux Foundation
- Rickey Dubay, Director Intelligent Controls Facility, University of New Brunswick, Co-Founder, Eigen Innovations Inc
- Craig Ramlal, Ex-Officio Member

Executive Committee

Craig Ramlal (chair)

- Arvind Singh PI, intelliGRID (UWI)
- Chris Maharaj PI, innovations (UWI)
- Sharad Maraj PI, CHEM-AI (UWI)
- Yohan Seepersad PI, Lightning (UWI)
- Kyle Hunte PI, AMoS (Rutgers University)
- Amir Mohammed PI, AGRIL (UWI)
- Ken Sooknanan PI, CyberANALYTICS
- Azim Abdool PI, SEMI (UWI)
- Amanda Zilla PI, dream LAB (UWI)

Core Management

Daniel Goitia (chair)

- Arvind Singh, Executive Committee Nominee
- Ravi Deonarine M, Infrastructure and High-Performance Compute
- Kevon Andrews M, Software Systems and Standards
- Craig Ramlal, Ex-officio Member

Advisory Board

Dean, Faculty of Engineering (chair) Bhesham Ramlal

- Director, SGSR
- Dean, Faculty of Science and Technology/N
- Dean, Faculty of Medical Sciences/N
- Dean, Faculty of Social Sciences/N
- Dean, Faculty of Law/N
- Dean, Faculty of Humanities/N
- Dean, Faculty of Agriculture/N
- Bursar/N
- Principal/N
- Craig Ramlal, Ex-officio Member

Co-Investigators ■ Secretariat ■ Researchers ■ Fellows ■ Developers ■ Industry Partners

Other Staffing totalling 48 members

KEY

PI: Principal Investigator | M: Manager | N: or Nominee

intelliGRID
Sustainable Energy Through Real Time Intelligence

AMOS

LIGHTNING

OFFICE OF THE EXECUTIVE DIRECTOR OF THE ARTIFICIAL INTELLIGENCE INNOVATION CENTRE

CyberAnalytics

innovations

CHEM-AI

Agricultural Growth Research and Intelligence Lab
Rooted in Purpose, Powered by Intelligence.

AI VR
dream LAB

Small Systems.
Smart Thinking.
Sustainable Futures.
SEMI
Sustainable Embedded Micro-Intelligence

The Artificial Intelligence Innovation Centre currently houses nine multidisciplinary research clusters involved in the creation of intelligent systems integrated into renewable energy systems, cybersecurity research and applications, semiconductor and sensor manufacturing, chemical systems, agriculture, robotics, plasma, digital humanities and broad innovation processes and systems. Centre wide projects, partnerships and special projects are coordinated through the office of the executive director.

Portfolio

Overview

Projects are currently housed within the nine research clusters, each specializing in a distinct area of artificial intelligence and applied innovation. Projects that span the centre are housed by the Executive Director's Office. Together, these clusters form a comprehensive portfolio that extends far beyond the traditional boundaries of AI research. While many international centres of AI focus primarily on digital tools, algorithmic development, and robotics the Artificial Intelligence Innovation Centre is deliberately multidimensional. Our work spans:

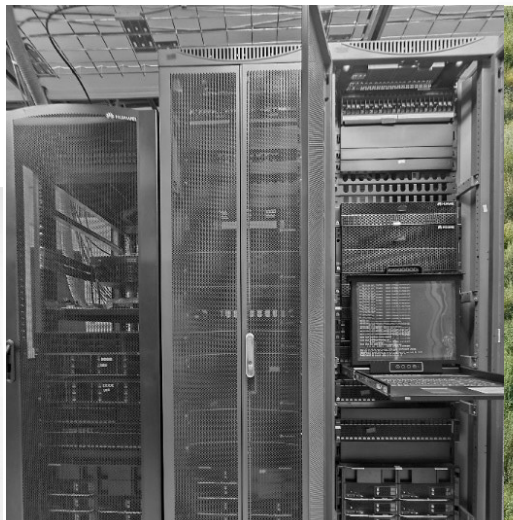
Hardware innovation – advancing semiconductor research, sensor development, robotics, renewable and plasma-based technologies to ensure the region contributes to the global hardware frontier.

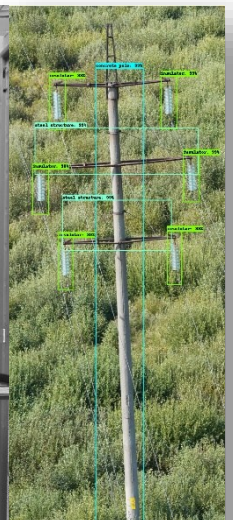
Mathematical foundations – developing new optimization methods, safety-constrained control systems, language models and theoretical frameworks to ensure AI is robust, verifiable, and reliable.

Policy and governance – contributing to national, regional, and global debates on AI governance, ethics, and equitable adoption, ensuring Caribbean voices shape international standards.

Software and digital tools – producing next-generation AI algorithms, applications, and platforms that solve real-world problems in energy, health, agriculture, and beyond.

Capacity building – training the next generation of researchers, professionals, and policymakers through structured education programmes, workshops, and hands-on projects.





intelliGRID
Sustainable Energy Through Real Time Intelligence

At the **intelliGRID Lab**, we research ways in which AI can transform today's energy systems, enhancing condition monitoring, control, protection, and optimization, so that utilities become more reliable and efficient.

We also believe that the sustainable energy transition opens possibilities for a democratized, environmentally sustainable and socially just energy future, and work toward true-cost modelling, integrating social and environmental impacts into energy system design.

Current & Future Focus Areas

We apply artificial intelligence and machine learning to improve the efficiency, reliability, and resilience of utility operations. Our work spans:

- **Access and Affordability and Impacts**: With a network of global partners, we explore how marginalized communities can participate in and benefit from clean energy systems. We explore why many community RE projects fail globally and develop adequate monitoring and design frameworks taking social and environmental considerations into account to improve success rates and reduce investment risks.
- **Energy Democratization**: How democratized energy markets will operate in Small Island Developing states as Renewable Energy prosumer penetration increases
- **Optimization**: Enhancing generation scheduling, dispatch, and load balancing under uncertain conditions
- **Condition Monitoring**: Deploying predictive analytics for fault detection, equipment health assessment, and maintenance planning in power systems and water utilities

dream LAB is a digital humanities lab engaged in interdisciplinary STREAM-research involving AI and virtual reality technologies. At this time, one of its primary research foci is Caribbean transmedial storytelling for cultural, social and environmental public education

Current & Future Focus Areas

- **AI character generation**: To develop the framework for the generation of character personalities using psychoanalytical approaches to narrative criticism.

- **Creation of ludonarratives using VR and AI technologies**: To develop opportunities for user interaction through AI generated and virtual environments with the intention of leveraging engagement for pedagogical purposes.

- **Development of AI and VR tools to support arts, culture, education and history**: To implement emerging technologies to various use cases within the arts, culture, heritage and education sectors.

- **Digital storytelling for Public Education & Advocacy**: To use digital storytelling as a practice to promote and inculcate environmental education, cultural awareness and social justice and advocacy within the Caribbean.

Autonomous Mono- or Multi-Systems

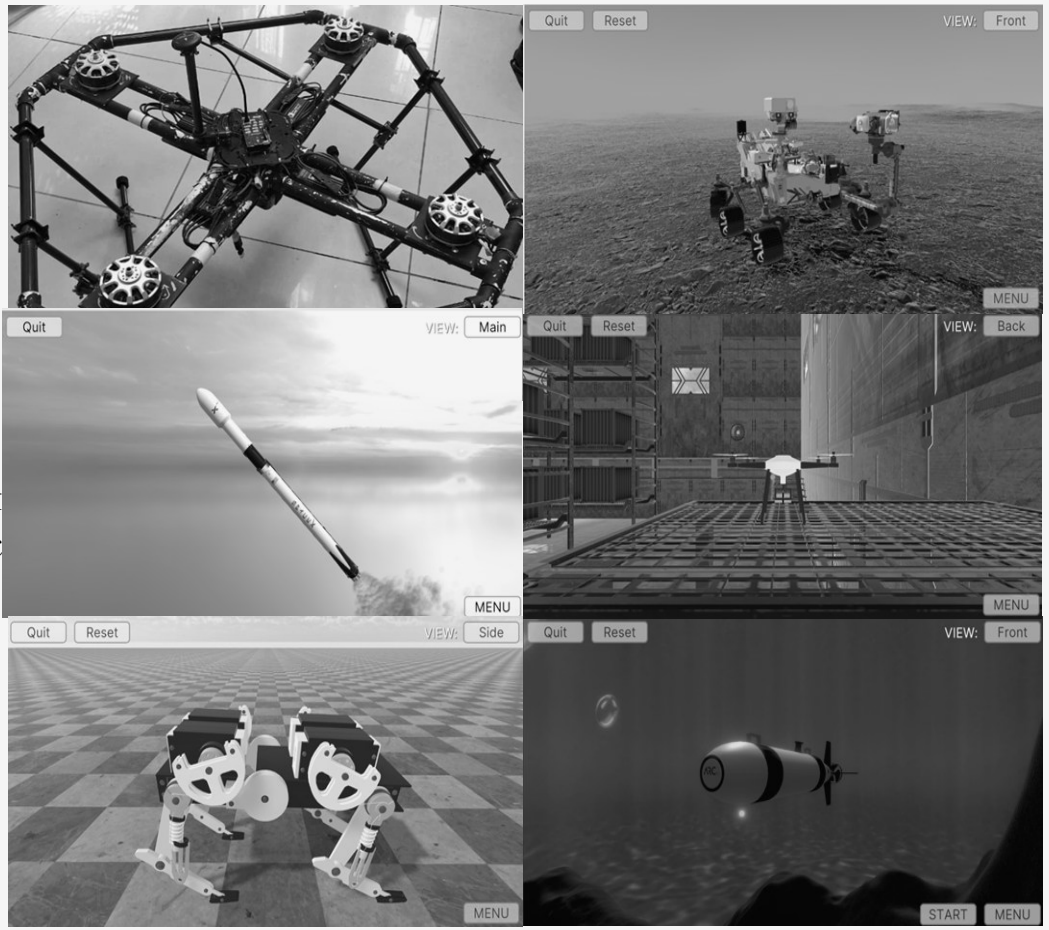
AMOS' primary objective is to develop and advance mathematical theories for optimization, safety-constrained control, estimation, predictive modeling, and diagnostics for autonomous robotic systems, both single- and multi-agent, and to translate these theories into standardized frameworks that ensure reliable, scalable, and verifiable autonomy.

Current & Future Focus Areas

- **Multi-Robot Transportation Control**: Cooperative control frameworks for teams of Unmanned Aerial Vehicles (UAVs), Unamnned Terrestrial Vehicles (UTVs), which has seen significant application in aerial firefighting, aerial package delivery, drone-based aerial displays, tethered payload transportation and other heavy-lift applications.

- **Articulated Robot Control:** This work aims to develop and implement control policies for jointed systems, such as robot arms, humanoids, and robotic dogs to accomplish time-critic tasks in manufacturing, cultural displays and object manipulation.

- **SimuNex (High-Fidelity Dynamic Simulation Framework)**: This work develops and implements a unity-based platform for simulating robotic systems, which supports research and innovation in complex system control.

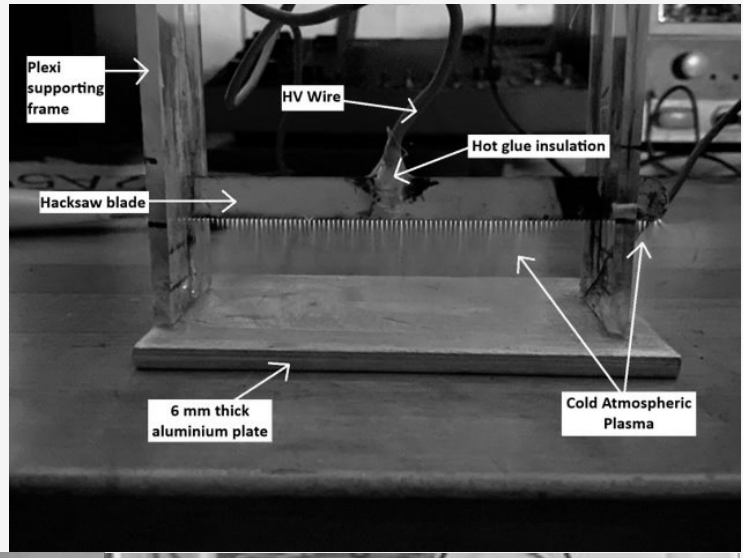


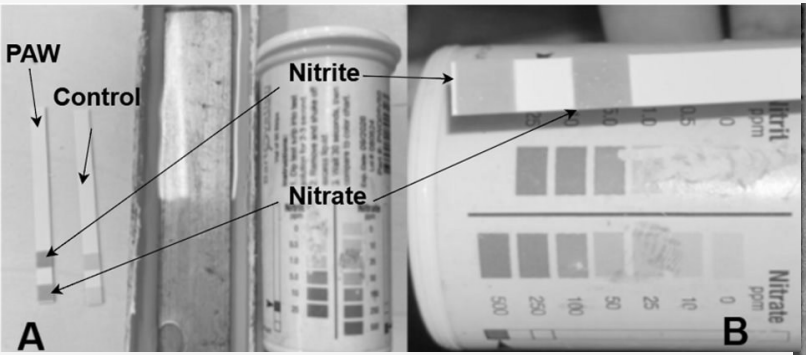
LIGHTNING

LIGHTNING aims to develop plasma-based engineering solutions for the unique challenges faced by developing economies. Efforts will focus on developing low-cost prototypes of plasma systems to address problems faced in the Caribbean and Latin America in agriculture, environmental science, food safety and materials science

Current & Future Focus Areas

- **Agriculture**: fertigation, aquaponic treatment, seed germination, disinfection, pest control
- **Environmental**: wastewater management, snail management
- **Food & Chemistry**: plasma-enhanced chemical extraction
- **Materials**: plasma treatment of materials and surfaces

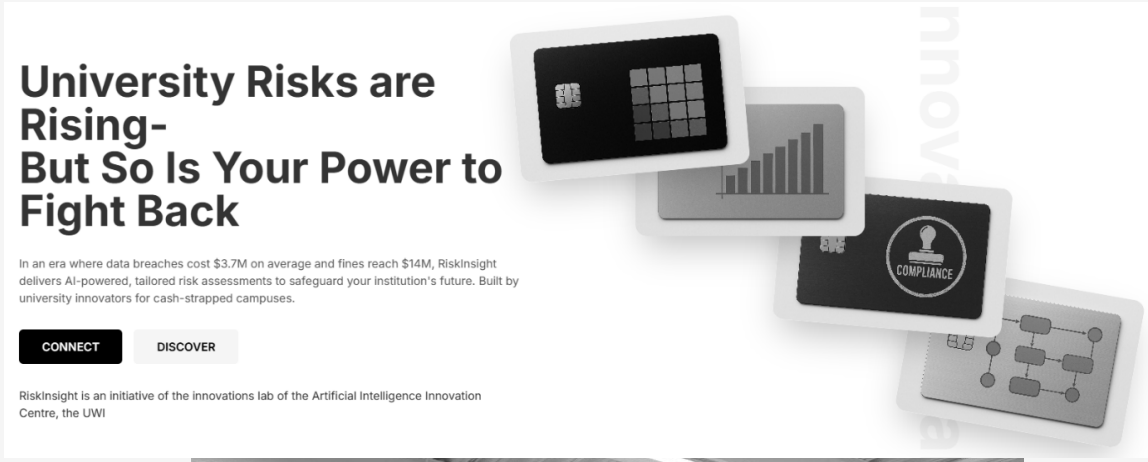




The **Innovation** group drives fast, practical applications of AI. Its focus is on incremental, quickly implementable solutions that can scale into sector-wide transformation. By emphasizing speed, adaptability, and tangible outcomes, the group ensures that promising ideas move rapidly from concept to real-world use.

Current & Future Focus Areas

- Applied research and prototyping
- Fostering a culture of creativity and experimentation
- Technology transfer and commercialization
- Strategic partnerships and collaborations
- Responsible and ethical AI practices
- Building internal capability and talent
- Cross-disciplinary innovation
- Showcasing and disseminating breakthroughs



Upcoming Research Clusters

Agricultural Growth Research and Intelligence Lab

Rooted in Purpose, Powered by Intelligence.

AGRI Lab is dedicated to advancing intelligent, AI-powered systems and enabling technologies that transform agriculture for climate resilience, food sovereignty, and rural empowerment in the Caribbean and globally.

CHEM-AI

The **Chem-AI** research cluster is focused on integrating AI, ethnobotanical knowledge, and extraction engineering for the development of natural extracts for food, pharmaceuticals, nutraceuticals, fragrances, and cancer research, while raising public health awareness

CyberAnalytics

The **CyberAnalytics** Cluster aims to strengthen and support the cybersecurity industry in the Caribbean in the face of AI-enabled digital threats. Our goal is to integrate artificial intelligence (AI) into detection and defense solutions and offer professional consultancy services to build regional expertise through combining machine learning, network engineering, systems security, and virtual testbeds to study, simulate, and defend against real-world cyber threats.

Small Systems.
Smart Thinking.
Sustainable Futures.
SEMI
Sustainable Embedded Micro-Intelligence

SEMI (Sustainable Embedded Micro-Intelligence) develops sustainable, inclusive, and resource-aware embedded systems for real-world, constrained environments. From low-power ASICs to resilient architectures, we create context-appropriate solutions that empower the Caribbean and Global South with efficient, adaptable, and impactful intelligent technologies.

The Office of the Executive Director (OED)

The OED establishes projects that are within the following categories:

- Partnerships that do not fall within the mandate of other research clusters.
- Centre-wide special and research projects that provide foundational technologies for the entire centre
- Data gathering or consulting projects convening members of the centre that may result in policy-based recommendations.

The Office of the Executive Director (OED) serves as the strategic, coordinating, and policy-oriented arm of the Centre. It ensures alignment between the Centre's mission and its research, outreach, and partnership activities. The OED provides leadership on centre-wide initiatives that extend beyond the scope of individual clusters. The OED uses the Centre's resources to develop special projects, research projects and partnerships, without the requirement of prior approval.

Highlighted Current Projects

- Partnerships:
    - **The Digital Cocoa, Climate and Genomics Accelerator**: This partnership with the Cocoa Research Centre at The University of the West Indies covers carbon capture estimation in cocoa and shade trees for utilization as nature credits in a globalized nature credit market. Additionally, the partnership also covers the application of AI to gene identification and engineering of robust Cocoa species.
    - **Interdependent Complex Systems Modelling & Control:** This partnership with the Development Bank of Resilient Prosperity aims to develop prediction and control-based methods for development financing.
- Capacity Development:
    - **Multi-disciplinary AI Masters**: The AIIC is leading the development of a cross-faculty multidisciplinary Masters in AI.
- System Development:
    - **AI Safety & Foundational Models**: Development of safety frameworks, benchmarks and standards for the ethical use of AI technologies in the region in relation to harm classification and quantitative frameworks and the development of a Caribbean foundational Large Language Model (LLM), contextualized for the Caribbean and optimized for low compute infrastructure to improve regional accessibility.

Partnership Opportunities

1. Research

- Joint research projects.
- Co-supervision of graduate students and postdoctoral fellows.
- Access to shared datasets, testbeds, and experimental facilities.

2. Technology Transfer and Commercialization

- Licensing of intellectual property and patents.
- Joint ventures and spin-offs with private sector partners.
- Pilot projects to test prototypes in real-world environments.
- Support for innovation pipelines from concept to market.

3. Capacity-Building and Training

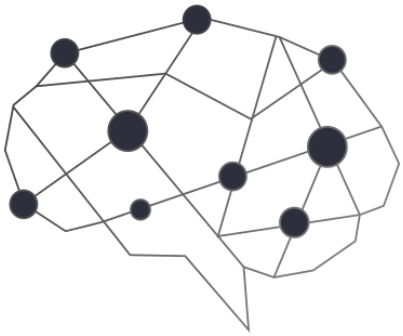
- Professional development courses for government and industry.
- Short courses, certificates, and executive education in AI and digital innovation.
- Hands-on training for students, entrepreneurs, and community organizations.
- Internships, fellowships and visiting researcher programmes.
- Development of regional and global consortia for high-impact research.

4. Sponsorship and Philanthropy

- Financial sponsorship of research clusters, labs, or flagship projects.
- Philanthropic investments in scholarships and education programmes
- Named facilities, chairs, and endowed programmes.
- Event sponsorships (conferences, workshops, hackathons).

5. Policy and Governance Collaborations

- Joint development of AI policies, standards, and ethical frameworks.
- Technical advisory services for governments, regulators, and regional bodies.
- Multistakeholder dialogues on AI for sustainable development.
- Contributions to international policy processes where Caribbean perspectives are vital.



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