THE UNIVERSITY OF THE WEST INDIES

FIVE ISLANDS CAMPUS

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JUL 8–10 2024

AI RESEARCH CONFERENCE

Reimagining the Digital Transformation of the Caribbean in an age of Generative AI & the 5th Industrial Revolution

CONFERENCE LOCATION

THE UNIVERSITY OF THE WEST INDIES FIVE ISLAND CAMPUS

ANTIGUA & BARBUDA

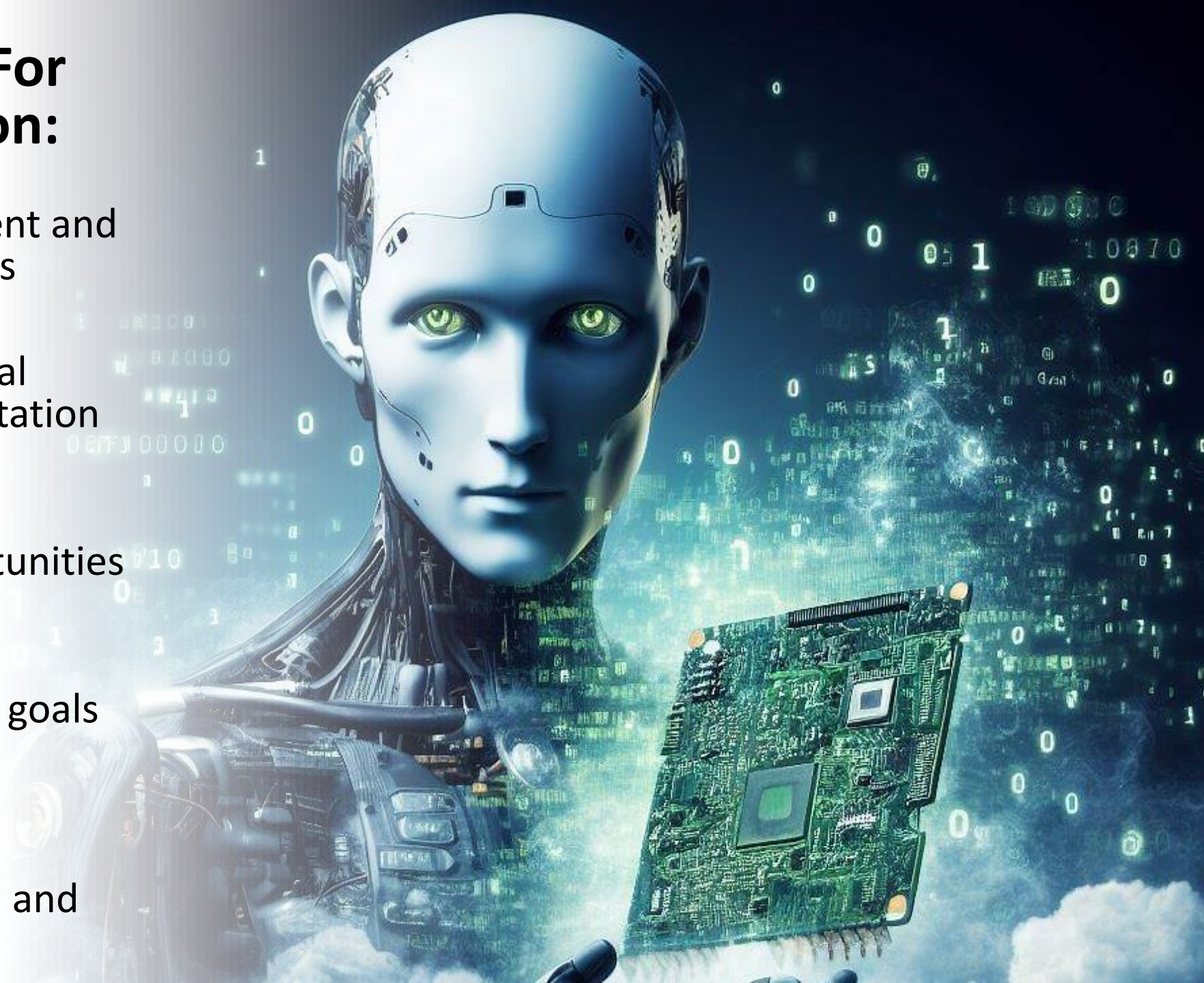**Fiveislandsaiconference.com**

Conference Objectives:

Showcase cutting-edge AI research and innovations relevant to the Caribbean region – aligned to SDGs.

- Foster collaboration and knowledge-sharing between AI researchers, experts, policymakers, and stakeholders.

- Discuss strategies and best practices for leveraging AI to advance sustainable development goals in the Caribbean.

- Raise awareness of AI ethics, risks, and responsible implementation.

- Inspire innovative thinking and exploration of how AI can empower sectors like healthcare, education, tourism, agriculture, etc.

- Strengthen the Caribbean's capacity for AI adoption through skills-building and workforce development.
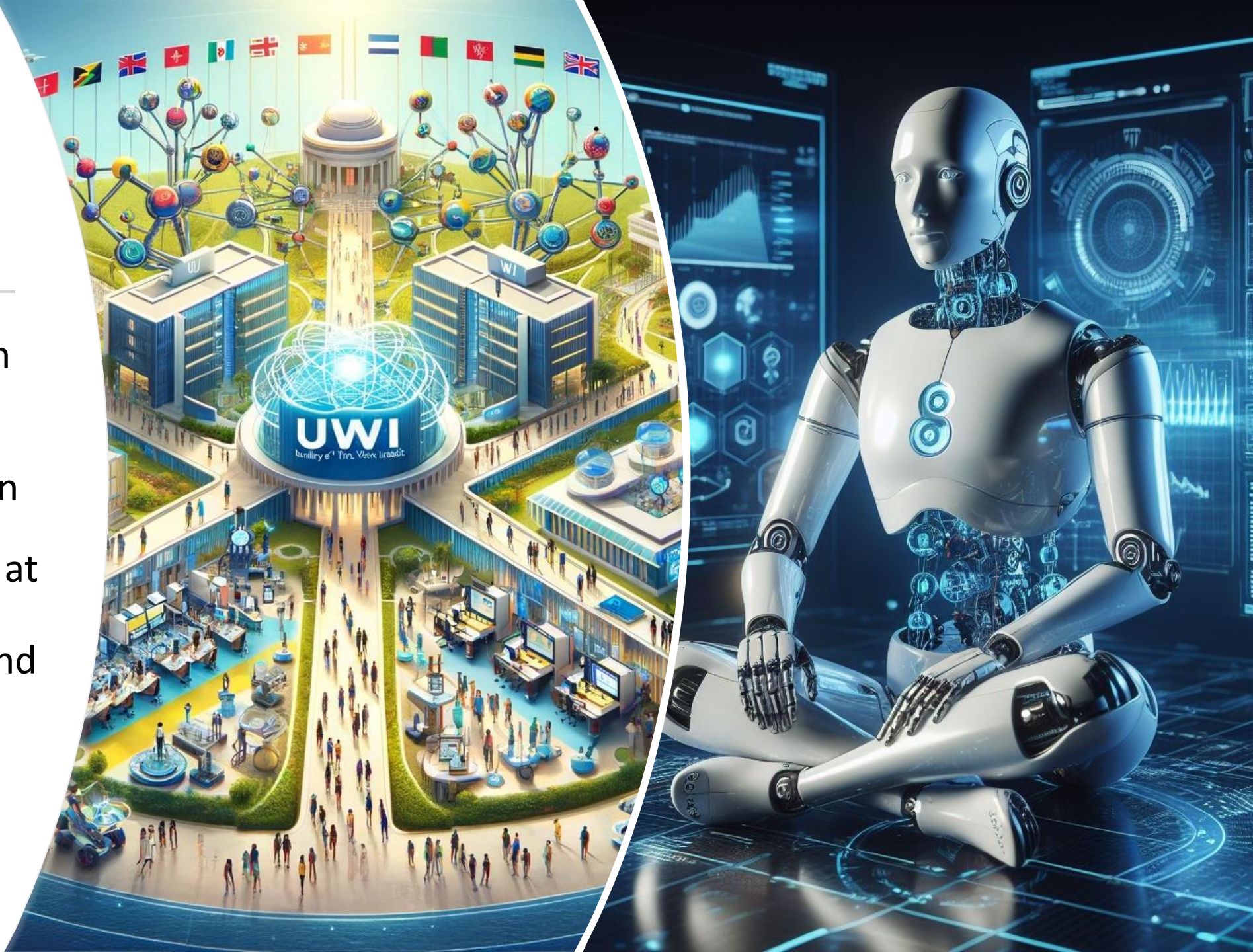
Goals and Benefits For the Caribbean Region:

- Accelerate the development and adoption of AI across sectors

- Enable inclusive and ethical approaches to AI implementation

- Enhance regional competitiveness and opportunities in the global AI landscape

- Progress towards regional goals and priorities through AI

- Set the stage for ongoing advancement of AI research and development

Goals and Benefits for The UWI:

• Establish thought leadership in AI research and innovation for the Caribbean.

• Showcase excellence in technology and interdisciplinary studies at UWI.

• Attract top students and faculty in AI and related fields.

• Form new research collaborations and external partnerships.

Goals and Benefits for Antigua & Barbuda:

- With the establishment of SIDS4 CoE & Data Hub, promote A&B as an AI engine of innovation in the region.

- Contribute to a thriving AI ecosystem and knowledge economy.

- Inspire new entrepreneurial ventures emerging from Caribbean Universites and Colleges.

- Attract foreign investment.

- Address sustainable development priorities with AI.

DATA SCIENCE HACKATON FOR UNIVERSITY & HIGH SCHOOL STUDENTS

AI IN THE CLASSROOM:
- Generative AI Deep Dive for 150 teachers

AI ACADEMIC PAPERS PRESENTATION:
- 70 PAPERS ACCEPTED

PRE-CONFERENCE

Demystifying AI:
What it is,
What it Does, and
Where It's Taking Us

JULY 8, 2024

Keynote Speakers

Danielle Belgrave, Ph.D.
VP of Artificial Intelligence/ Machine Learning at Glasco Smith Kline AI (GSK)

Bharat N. Anand, Ph.D.
Vice Provost for Advances in Learning at Harvard University, and the Henry R. Byers Professor of Business Administration at

Harvard Business School

Chris Jones, Ph.D.
Chris Jones was the 2022 Democratic nominee

for Governor of Arkansas

Nicholas Fuller, PhD..
Vice President of AI and Automation at IBM Research

Sample of Key Speakers...

Craig Ramlal, Ph.D.
Member, United Nations High-Level Advisory Body on Artificial Intelligence; Lecturer in the Department of Electrical and Computer Engineering, UWI St. Augustine

Professor Lloyd Waller
Executive Director at The Global Tourism Resilience and Crisis Management Centre

Naila Murray, Ph.D.
Senior Research Manager, META AI, London, England

Mrs. Agnes Adolphine
Senior Research Manager, MSE, PMP, Director, Learning and Implementation – Operations, Cox Communications

Prof. Patrick Hosein
Professor of Computer Science and Electrical Engineering, University of the West Indies, St. Augustine

Mr. Chris Bunio
Co-Founder and CEO at TheoryMesh, USA

Cherie Tulloch, D.M.
Obstetrics and Gynaecology {AI & Cervical Cancer)

Sandeep Maharaj, Ph.D.
Senior Global Outreach Fellow at Planetary Health Alliance and Senior Lecturer UWI, Associate Dean Distance Education Planning and Projects

Fateh Belaid, Ph.D.
Energy & Environmental Economist, Saudii Arabia

Bevil Wooding
Executive Director
The Caribbean Agency for Justice Solutions

D. A. Farrell, Ph.D.
Principal, Caribbean Institute for Meteorology and Hydrology (CIMH), Barbados

Mr. Gary Simms, Sr
Senior Director, Information Security Strategy & Architecture, Walmart Global Tech, USA
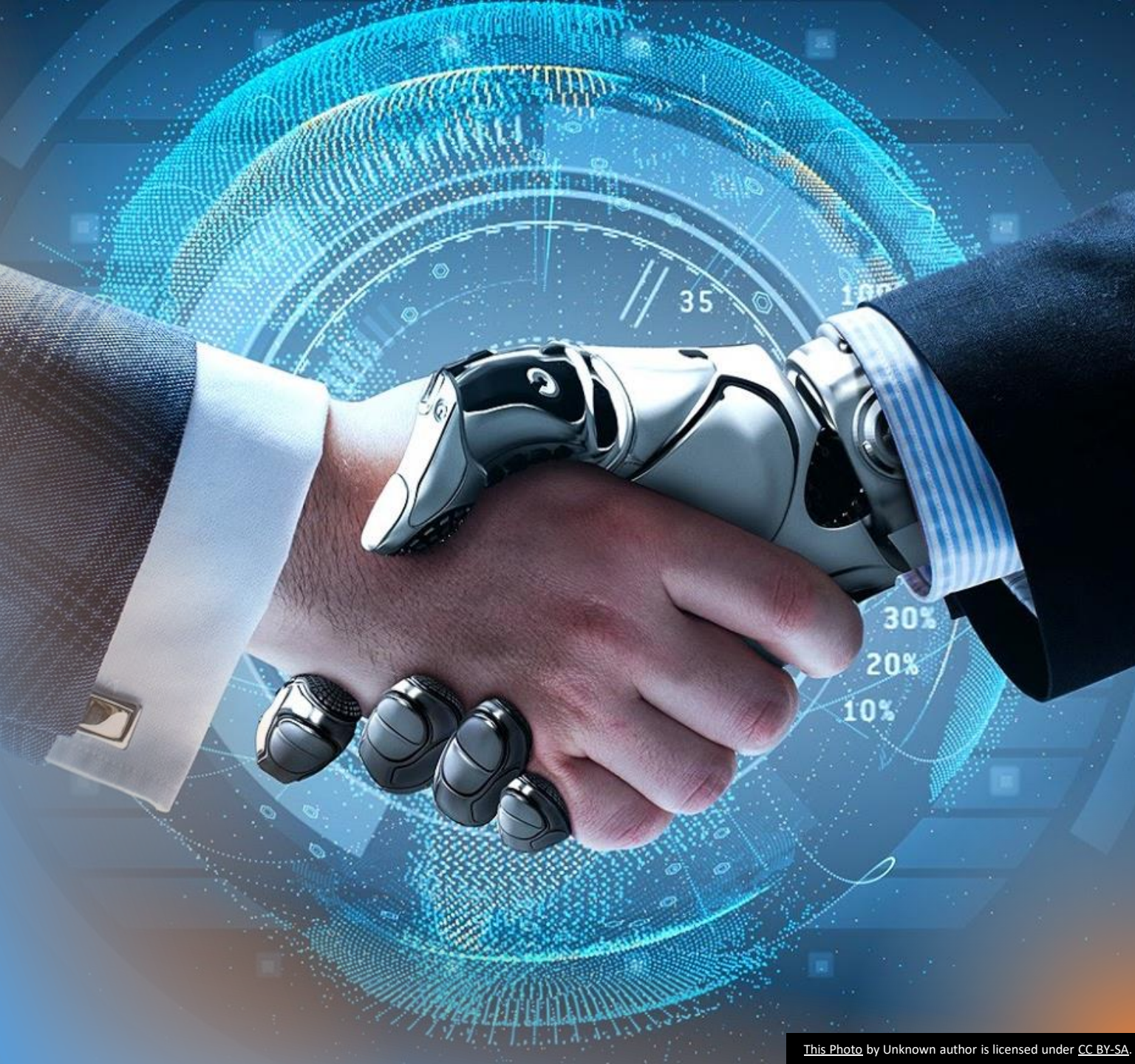
Kickoff with Conference Launch

AI @ Hodges Bay Resort

July 8th, 2024
6:30 pm-8:30 pm

- Welcome Remarks: AI and Education – the Inevitability of Innovation: Vice Chancellor Beckles
- Keynote Address: Setting the Tone for Reimagining the Digital Transformation of the Caribbean: -Honorable Prime Minister Gaston Browne

- Fireside AI Chat: Principal Robinson (moderator), Danielle Belgrave, Ph.D., VP of Artificial Intelligence/ Machine Learning at Glasco Kline Smith AI (GKS), Kevin Khelawan, CEO, Advent AI, Timothy Antoine, Governor ECCB, and EU AI Representative

Igniting Possibilities: Empowering the Caribbean with AI & 5IR Innovations

[SDGs: 9 - Industry, Innovation and Infrastructure]

This exhilarating panel propels the transformative force of Artificial Intelligence and Fifth Industrial Revolution (5IR) innovations to the forefront of the Caribbean's digital metamorphosis. The word "igniting" blazes with dynamic energy, encapsulating the panel 's ambitious endeavor to kindle a flame of inspiration, foster vibrant collaboration, and stimulate decisive action among its attendees. This immersive engagement with AI and 4IR innovations represents a potent catalyst for the Caribbean, signaling a surge of growth, progress, and transformative change across numerous sectors. As the narrative unfolds, it promises a trailblazing journey towards a radiant and technologically empowered future for the region.

Forging a Digital Frontier: Empowering the Caribbean with a Resilient Digital Infrastructure

[SDGs: 9 - Industry, Innovation and Infrastructure]

The "Forging a Digital Frontier" panel is designed to actively drive the development of a robust and resilient digital infrastructure in the Caribbean. By focusing on strategic enhancements to digital connectivity, we aim to create a network capable of overcoming environmental and cyber threats. Our panel discussions will highlight the potential of an improved digital infrastructure to empower Caribbean communities, providing improved access to a wide range of online services. Alongside this, we'll address the essential role of supportive policies and regulations, as well as the importance of implementing sustainable and inclusive practices in this transformative journey.

Cultivating Change: Igniting Innovation for Sustainable Agriculture

the human ingenuity of Small Island States' Agriculture Industry in an era of

[SDGs: 2 - Zero Hunger, 12 - Responsible Consumption and Production]

The "Cultivating Change: Igniting Innovation for Sustainable Agriculture" panel seeks to catalyze advancements in sustainable agricultural practices. By fostering an environment of innovation, we strive to stimulate the development of novel technologies and methods that ensure both the longevity of our natural resources and the productivity of our agricultural sectors. Our discussions will focus on inspiring change, promoting sustainable practices, and encouraging the use of technology in farming, ultimately aiming to safeguard our environment while optimizing agricultural output.

50%

27.9°C

production must be increased by **70%**, in order to feed everyo by
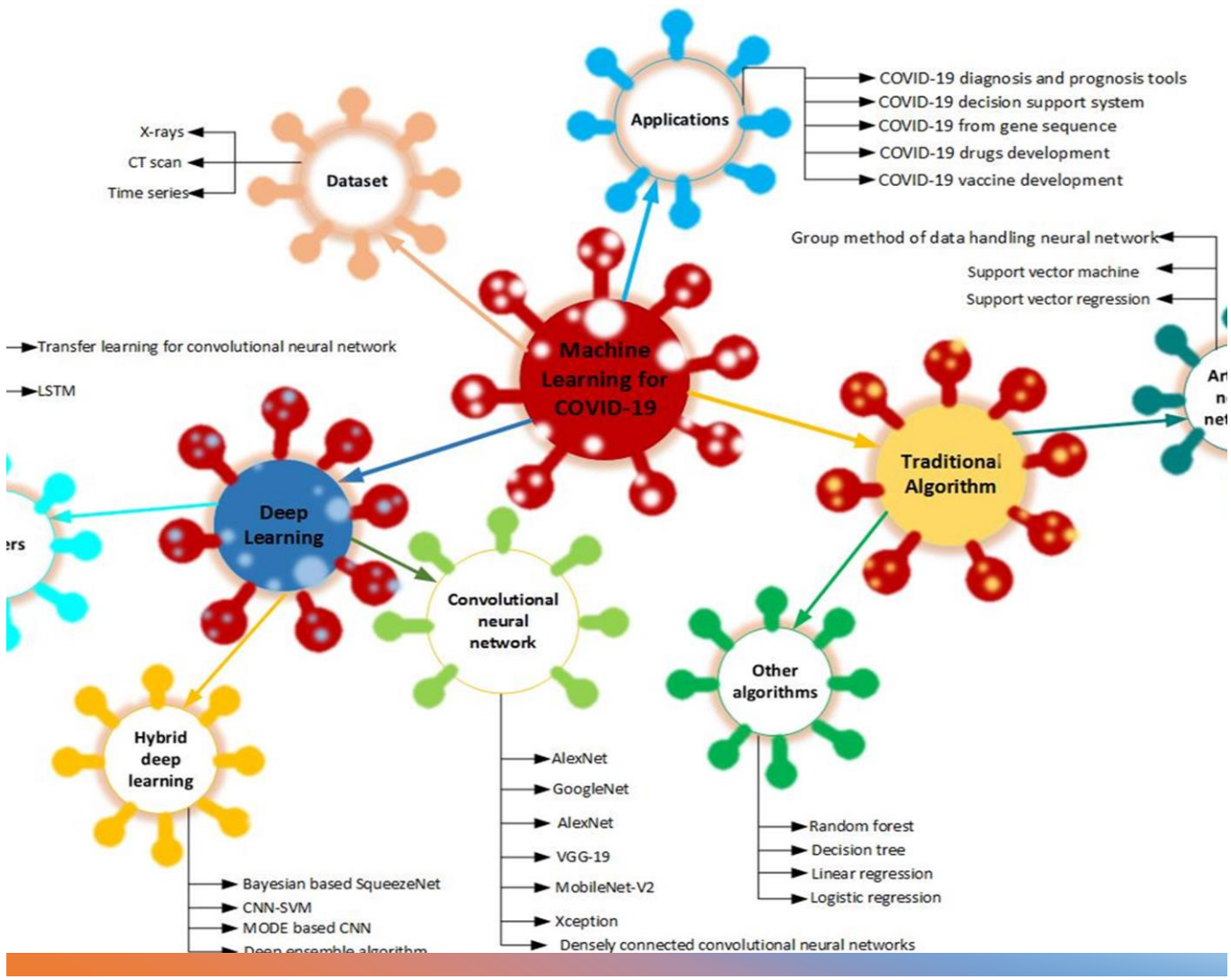
2050

Revolutionizing Healthcare:
AI For the Preparedness of Pandemics & Epidemics

[SDGs: 3 - Good Health and Well-Being]

The "Revolutionizing Healthcare: Empowering the Battle Against Communicable Diseases with AI and 4IR Innovations" panel is designed to drive the transformation of healthcare practices in combating communicable diseases. By leveraging the power of Artificial Intelligence (AI) and Fifth Industrial Revolution (5IR) innovations, we aim to enhance disease detection, prevention, and treatment methodologies. Our panel discussions will focus on harnessing these cutting-edge technologies to fortify global health defenses, aiming to improve patient outcomes and elevate the overall standards of public health.
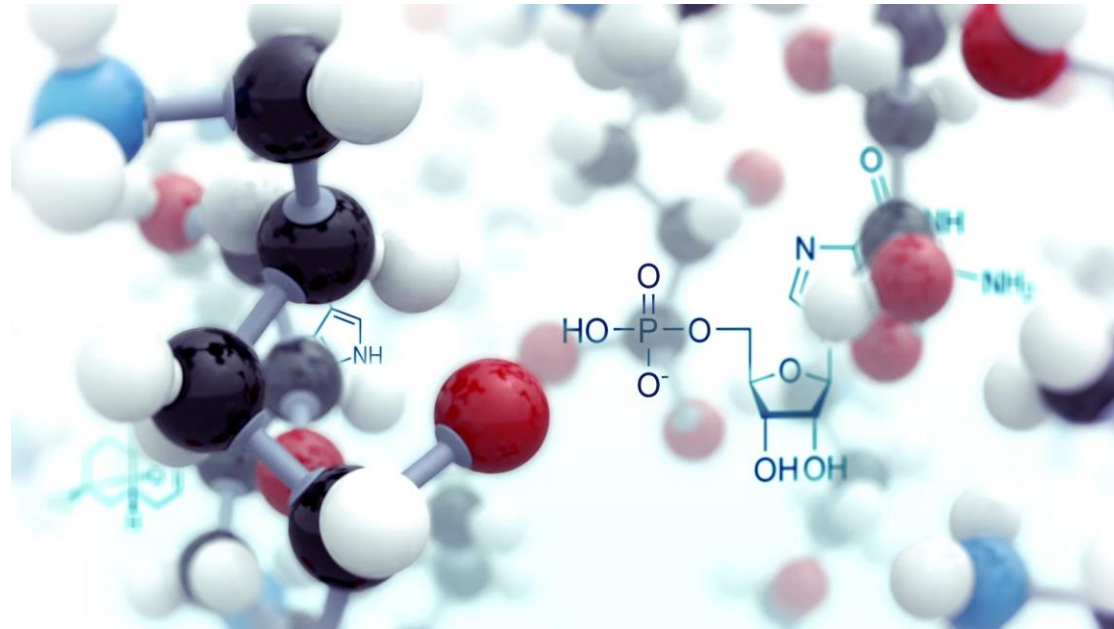
Welcome to Generative Pharmacy

@ The University of the West Indies Five Islands Campus, Antigua & Barbuda

An innovative field that integrates computational models, machine learning, and pharmaceutical research to develop a new generation of pharmacist for the

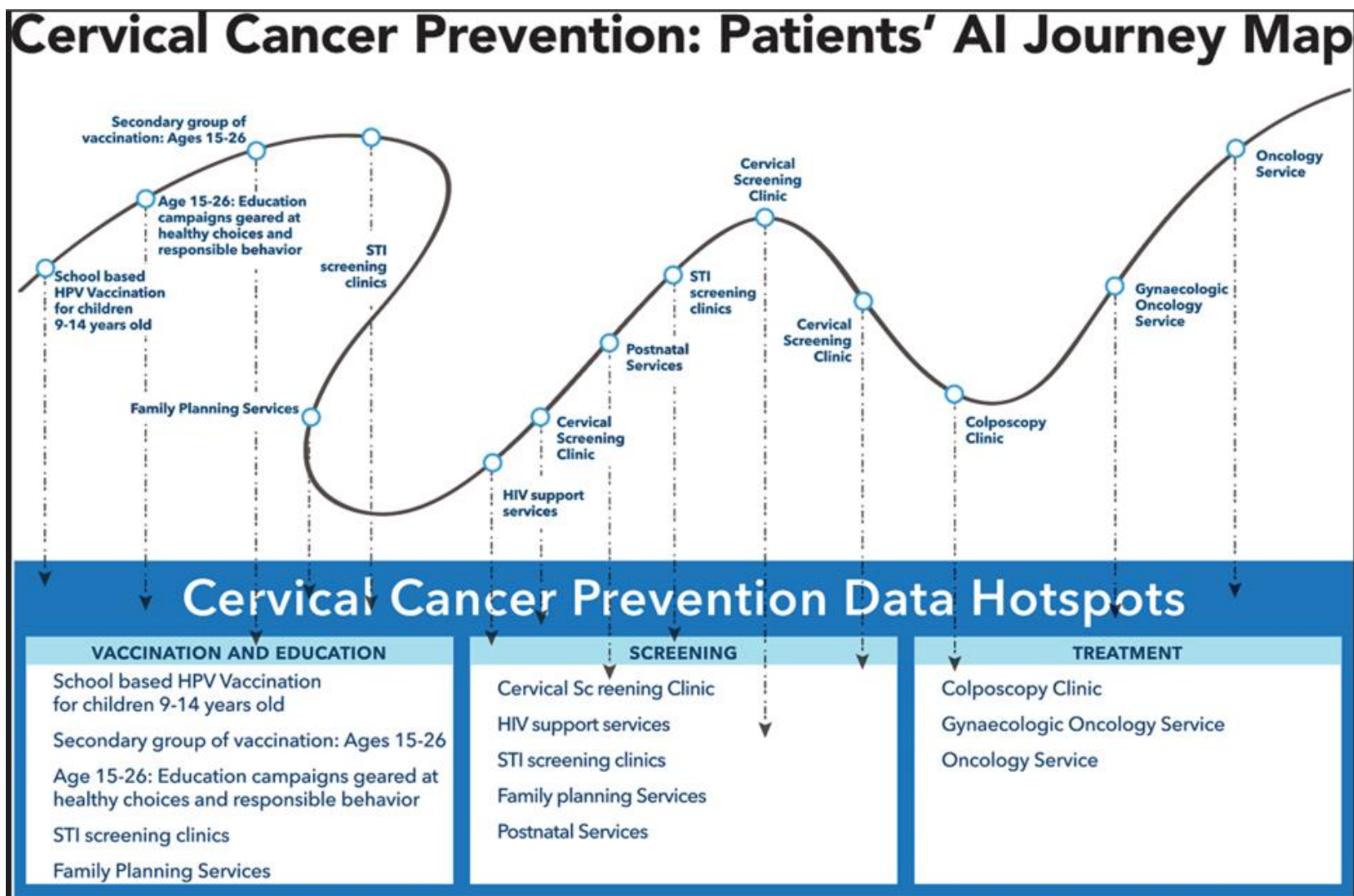**Future of Work**

&

Entrepreneurship

Revolutionizing Healthcare:
AI For the Preparedness of Pandemics & Epidemics

[SDGs: 3 - Good Health and Well-Being]

Revitalizing Healthcare: Unleashing the Power of AI and 5IR Innovations to Confront Non-Communicable Diseases

[SDGs: 3 - Good Health and Well-Being]

The "Revitalizing Healthcare: Unleashing the Power of AI and 4IR Innovations to Confront Non- Communicable Diseases" panel is committed to accelerating advancements in healthcare to tackle non- communicable diseases more effectively. Harnessing the potential of Artificial Intelligence (AI) and Fifth Industrial Revolution (5IR) technologies, we aim to augment diagnosis, prevention, and management strategies. Our discourse will center around utilizing these groundbreaking technologies to combat non- communicable diseases, aiming to bolster healthcare outcomes and enhance the quality of life for affected individuals.

Cervical Cancer Prevention: Patients' AI Journey Map

Revitalizing Healthcare: Unleashing the Power of AI and 5IR Innovations to Confront Non-Communicable Diseases
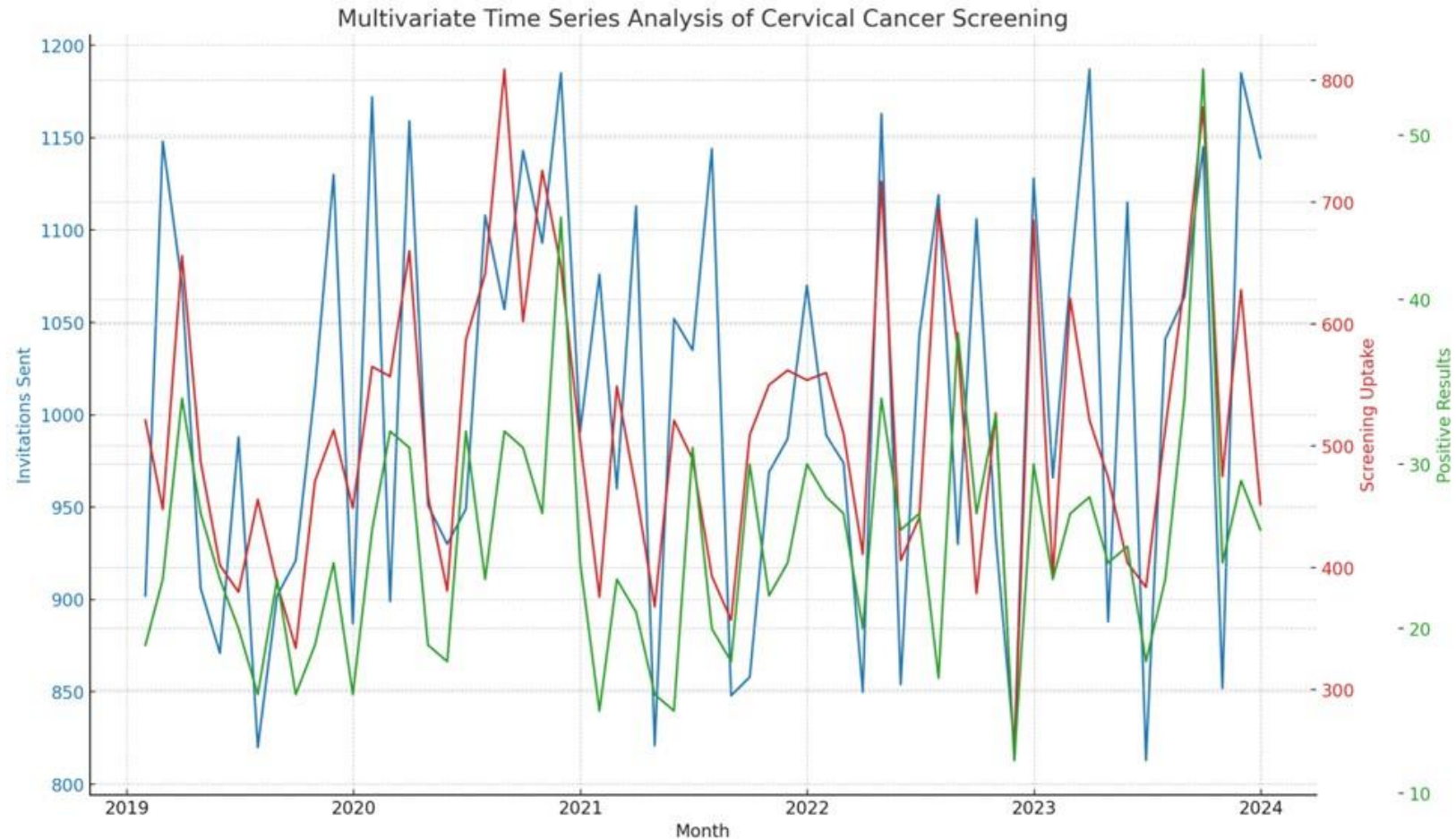
[SDGs: 3 - Good Health and Well-Being]

1. Invitations Sent **(Blue Line**, Left Y-axis): This represents the number of invitations sent out monthly for cervical cancer screening. The values fluctuate between 800 and 1200, showing significant variability over the years.

2. Screening Uptake **(Red Line**, Right Y-axis): This indicates the number of individuals who responded to the screening invitations. The values range from approximately 300 to 800. There is noticeable volatility in the uptake, with several peaks and troughs.

3. Positive Results (**Green Line**, Right Y-axis): This metric shows the number of positive screening results detected each month. The values range from around 10 to 50. Similar to the other metrics, there are fluctuations, but the overall pattern appears to be more consistent compared to the invitations and uptake.

Multivariate Time Series Analysis of Cervical Cancer Screening

Observation:
This visualization helps in understanding the relationship between outreach efforts (invitations sent), the public's response (screening uptake), and the outcomes of the screenings (positive results). Such insights are crucial for optimizing cervical cancer screening programs, improving early detection, and ensuring efficient allocation of resources.

Empowering the Caribbean's Sustainable Development with Unstoppable Progress

[SDGs: 7 - Affordable and Clean Energy, 13 - Climate Action]

The "Igniting Transformation: Empowering the Caribbean's Sustainable Energy Development with Unstoppable Progress" panel is designed to stimulate transformative advancements in the region's sustainable energy sector. By endorsing innovative practices and forward-thinking solutions, we aim to fuel progress in the development of renewable energy sources, ultimately propelling the Caribbean towards a sustainable future. Our discussions will focus on leveraging technology and policy reforms to bolster renewable energy initiatives, demonstrating our commitment to environmental responsibility and energy independence.

Smart city components

Leveraging Generative AI and 5IR Innovations in Building Caribbean Smart Cities

[SDGs: 11 - Sustainable Cities and Communities]

The "Shaping Tomorrow's Cities: Pioneering Smart Solutions for Caribbean Urban Planning" panel is dedicated to driving innovative urban planning strategies for Caribbean cities of the future. By endorsing the adoption of smart solutions, we aim to transform the design and functionality of urban spaces, optimizing them for sustainability, connectivity, and livability. Our discussions will delve into the exploration and implementation of advanced technologies and data-driven strategies in urban planning, demonstrating our commitment to creating vibrant, resilient, and smart Caribbean cities.

Transforming the Future: Unleashing AI to Tackle the Impact of Climate Change on Healthcare and Disaster Management

[SDGs: 13 - Climate Action]

The "Transforming the Future: Unleashing AI to Tackle Climate Change & Disaster Management" panel is committed to harnessing the power of Artificial Intelligence (AI) to confront the twin challenges of climate change and disaster management. By capitalizing on AI's potential, we aim to enhance our ability to predict, mitigate, and adapt to the multifaceted impacts of climate change, as well as to improve disaster preparedness and response. Our discussions will center on the pivotal role of AI in generating data-driven insights and innovative solutions for a resilient and sustainable future.

Use Case: "Forecast-Based Financing (FBF)"

The Government of Antigua and Barbuda wants to know its liquidity after a level 5 hurricane hits the island.

- **Definition:**

  - Forecast-Based Financing (FBF) is a proactive approach used primarily in disaster risk reduction and management.

  - It involves using forecast information and risk analysis <u>to anticipate disasters</u>, <u>pre-arrange financing</u>, and <u>execute predefined actions to minimize the impact</u>.

  - In the context of assessing the liquidity of a government like Antigua and Barbuda's after a level 5 hurricane, FBF can provide insights into how preparedness and early actions can influence financial outcomes.

Use Case: "Forecast-Based Financing"

The Government of Antigua and Barbuda wants to know its liquidity after a level 5 hurricane hits the island.

- **Key financial indicators before and after a disaster like a level 5 hurricane**

  - **Government Revenue**: Reflecting typical income sources such as taxes, duties, etc.
  - **Government Expenditure**: Regular administrative and developmental expenses.
  - **Disaster-Related Expenses**: Costs incurred due to the hurricane, including emergency response and recovery expenses.
  - **Foreign Aid and Loans**: Financial assistance received post-disaster.
  - **Pre-Disaster Preparedness Investments**: Investments made in anticipation of disasters, as part of an FBF approach.
  - **Infrastructure Damage Estimates**: Projected costs for repair and reconstruction of infrastructure.
  - **Pre- and Post-Disaster Liquidity**: Government financial position before and after the hurricane.

Use Case: "Forecast-Based Financing"

The FBF model would then consider how investments in preparedness and early action (reflected in the Pre-Disaster Preparedness Investments) can reduce the impact of the hurricane on post-disaster liquidity. This could include less infrastructure damage, lower emergency response costs, and potentially more effective use of foreign aid.

▪ **Additional factors for an FBF model**

- **Years**: From 2010 to 2023.
- **Government Revenue**: Annual government income.
- **Government Expenditure**: Annual government expenses.
- **Disaster-Related Expenses**: Costs incurred due to the hurricane post-2019.
- **Foreign Aid and Loans**: Financial assistance received after the disaster, starting from 2020.
- **Pre-Disaster Preparedness Investments**: Investments made in anticipation of disasters, reflecting the FBF approach.
- **Infrastructure Damage Estimates**: Projected costs for repair and reconstruction due to the hurricane.
- **Pre-Disaster Liquidity**: Government's financial position before the disaster.
- **Post-Disaster Liquidity**: Government's financial position after the disaster, considering all factors.

Use Case: "Forecast-Based Financing (FBF)"

The Government of Antigua and Barbuda wants to know its liquidity after a level 5 hurricane hits the island.

- **The scenario analysis provides insight into how different levels of pre-disaster preparedness investments might impact post-disaster liquidity:**

The average post-disaster liquidity is about -79.31 million USD.

Reimagining Caribbean Education in an age of Generative AI and the 5th Industrial Revolution and Beyond

[SDGs: 4 - Quality Education]

Participate in the insightful panel on Digital Education and Skills Development for the 5th Industrial Revolution and Beyond, where the realms of education and innovation merge. Esteemed experts and educators will discuss the emerging technologies and strategies that are redefining future learning. Delving into topics from Generative AI to Virtual Reality, attendees will gain insights into how education is evolving beyond traditional paradigms, emphasizing increased accessibility and adaptability. Suitable for educators, business professionals, and those keen on future trends, this panel offers a comprehensive look into the synergy of technology and education. Join us in this enlightening exploration.

Day 1: July 9, 2024

- Opening Panel: Igniting Possibilities: Empowering the Caribbean with AI & 5IR Innovations.

- Session 1A: Forging a Digital Frontier: Empowering the Caribbean with a Resilient Digital Infrastructure.

- Session 1B: The Future of Food: How AI Enables Sustainable Agricultural Practices.

- Session 1C: Leveraging Generative AI for Pandemic and Epidemic Preparedness and Prevention.

- Session 1D: Advancements in Healthcare: Harnessing AI and Fifth Industrial Revolution Innovations for the Management of Non-Communicable Diseases.

- Session 1E: Catalyzing Change: Strengthening Generative AI Through Entrepreneurship and Inclusive Innovation.

- Session 1F: Driving Industry Innovation: Integrating Generative AI into the Caribbean's Sustainable Development Strategy.

- Session 1G: Leveraging Generative AI and 5IR Innovations in Building Caribbean Smart Cities of the Future.

- Session 1H: Transforming the Future: Unleashing Artificial Intelligence to Tackle Climate Change & its Impact on Health & Disaster Preparedness

Day 2: July 10, 2024

- Session 2A: Unleashing the Tourism Potential: Revolutionizing Experiences through Generative AI & Technology 5.0 Innovations.

- Session 2B: Advancing Maritime Frontiers: Integrating GenAI and 5IR Technologies for the Economic Development of Oceanography and Blue Economy.

- Session 2C: Safeguarding the Future: Fortifying Cybersecurity and Protecting Data Privacy in the Caribbean

- Session 2D: Fintech for the Future of Banking in the Caribbean.

- Session 2E: Reimagining Caribbean Education and Skills Development in an age of Generative AI and the 5th Industrial Revolution.

- Session 2F: Bridging the Divide: Empowering Inclusive Growth and Tackling Digital Inequality

- Session 2G: Navigating Legal Frontiers in the Age of Generative AI.

Charting the Path Forward: Reflection and Embracing the Conference's Key Insights

Confirmed speakers from:

5IR Artificial Intelligence

Annual Research Conference

Reimagining the Digital Transformation of the Caribbean in an age of Generative AI & the 5th Industrial Revolution

July 8-10, 2024

Location:
The University of the West Indies Five Islands Campus, Antigua & Barbuda

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