INDIA – CANADA DIGITAL COLLABORATION

Digital Technology and AI for Precision Agriculture

Together with Asia Pacific Foundation and IITM-Pravartak Technologies Foundation in India, Canada's Digital Technology Supercluster is hosting a series of workshops to explore the opportunity for industry and research collaborations between Canada and India in regenerative agriculture and the role that digital technologies, computational chemistry, cyber-physical systems, machine learning, artificial intelligence, robotics and automation can contribute towards a sustainable agricultural future.

October 23, 2020: Towards Sustainability: A Discussion on Regenerative Agriculture

October 30, 2020: Emerging Technologies in Precision Agriculture

November 6, 2020: Big Data in Agriculture

October 23, 2020: Towards Sustainability: A Discussion on Regenerative Agriculture

As we near a total population of 8 billion people, it has become critical to re-define our approaches to agriculture for a sustainable future. Regenerative agriculture is a conservation and rehabilitation approach to food and farming systems that focuses on topsoil regeneration, increasing biodiversity, improving the water cycle, enhancing ecosystem services, supporting biosequestration, increasing resilience to climate change, and strengthening the health and vitality of farm soil.[1]

In this workshop, we will explore the concepts of:

- Zero-budget farming
- Soil-based technologies
- Optimized and predictive irrigation systems

Featured Speakers:

Sue Paish, CEO of The Digital Technology Supercluster

Simon Kennedy, Deputy Minister Innovation, Science and Economic Development, Government of Canada

Prof. Ashutosh Sharma, Secretary Department of Science and Technology, Government of India

Stewart Beck, President and CEO, Asia Pacific Foundation of Canada

Prof. V. Kamakoti, IITM-Pravartak Technologies Foundation, IIT Madras

Karn Manhas, Founder and CEO, Terramera

Mr. Vijaykumar, Rythu sadhikara samstha (Ry.S.S)

Prof. Devendra Jalihal, Department of Electrical Engineering, IIT Madras

Mr. Sakthivelu, RF Wave Technologies Pvt. Ltd.

[1] Wikipedia https://en.wikipedia.org/wiki/Regenerative_agriculture

Prof. Arun K. Thangirala, Department of Chemical Engineering, IIT Madras

Prof. Sean Smukler, University of British Columbia

October 30, 2020: Emerging Technologies in Precision Agriculture

Worldwide, more than $85 billion is spent on crop protection. New pest-control products can tap into this market while protecting the world's food supply and lessening impacts on the environment. This second workshop will feature one of the Digital Technology Supercluster's projects in the area of Precision Agriculture for Crop Health. Led by Terramera, this project is developing new pest and pathogen controls through the use of computational biochemistry, genomics, machine learning, and robotics. By combining large data sets, the research will leverage machine learning and robotics to quickly identify and test new pest management formulations and determine their ability to attack specific fungi on specific crops.

In this workshop, we will explore the concepts of:

- Computational chemistry
- Robotics and AI
- Data analytics and quantum computing

Featured Speakers:

Bill Tam, Co-Founder of The Digital Technology Supercluster

Stewart Beck, President and CEO, Asia Pacific Foundation of Canada

Prof. V. Kamakoti, IITM-Pravartak Technologies Foundation, IIT Madras

Dr. Steve Slater, VP Strategic Initiatives, Terramera

Prof. R. Nagarajan, Department of Chemical Engineering, IIT Madras and Shri. M.R.G. Appa Rao, Murugappa Group

Mrs. Kanchan Bhonde, Tech Mahindra

Prof. S.A. Chakaravarthy, Department of Aerosapce Engineering, IIT Madras and Co-founder, The ePlane Company

Prof. Prem B. Bisht, Department of Physics, IIT Madras

Prof. R. Velmurugan, Department of Aerospace Engineering, IIT Madras

Prof. K. Giridhar, Department of Electrical Engineering, IIT Madras

November 6, 2020: Big Data in Agriculture

Big data can revolutionize the agricultural sector by harnessing an interconnected data ecosystem with the right tools and software to integrate various data sources. With global food demand set to surge almost twofold by 2050, it will be incumbent upon agricultural producers to harness data and innovation to improve productivity and feed a growing global population. Armed with data from a growing array of soil sensors, GPS-equipped equipment, weather and environment information, producers who implement precision agriculture will gain competitive advantage in their operations. On an aggregate basis, there is also an opportunity to take advantage of combined datasets to

provide unparalleled data analytics and insights that can better predict and manage key resources while increasing productivity.[2]

In this workshop, we will explore the concepts of leveraging agriculture data in the context of:

- Data trusts and data cooperatives
- Data management
- Data governance

Featured Speakers:

Sue Paish, CEO of The Digital Technology Supercluster

Stewart Beck, President and CEO, Asia Pacific Foundation of Canada

Prof. V. Kamakoti, IITM-Pravartak Technologies Foundation, IITMadras

Mr. K. Ananth Krishnan, Tata Consultancy Services

Dr. Srini Pappula, Tata Consultancy Services

Dr. Beena Rai, Tata Consultancy Services

Mark Alexiuk, CTO, Sightline Innovation

Keith Jansa, CIO Strategy Council

[2] https://www.futurefarming.com/Tools-data/Articles/2019/7/4-ways-big-data-analytics-are-transforming-agriculture-450440E/