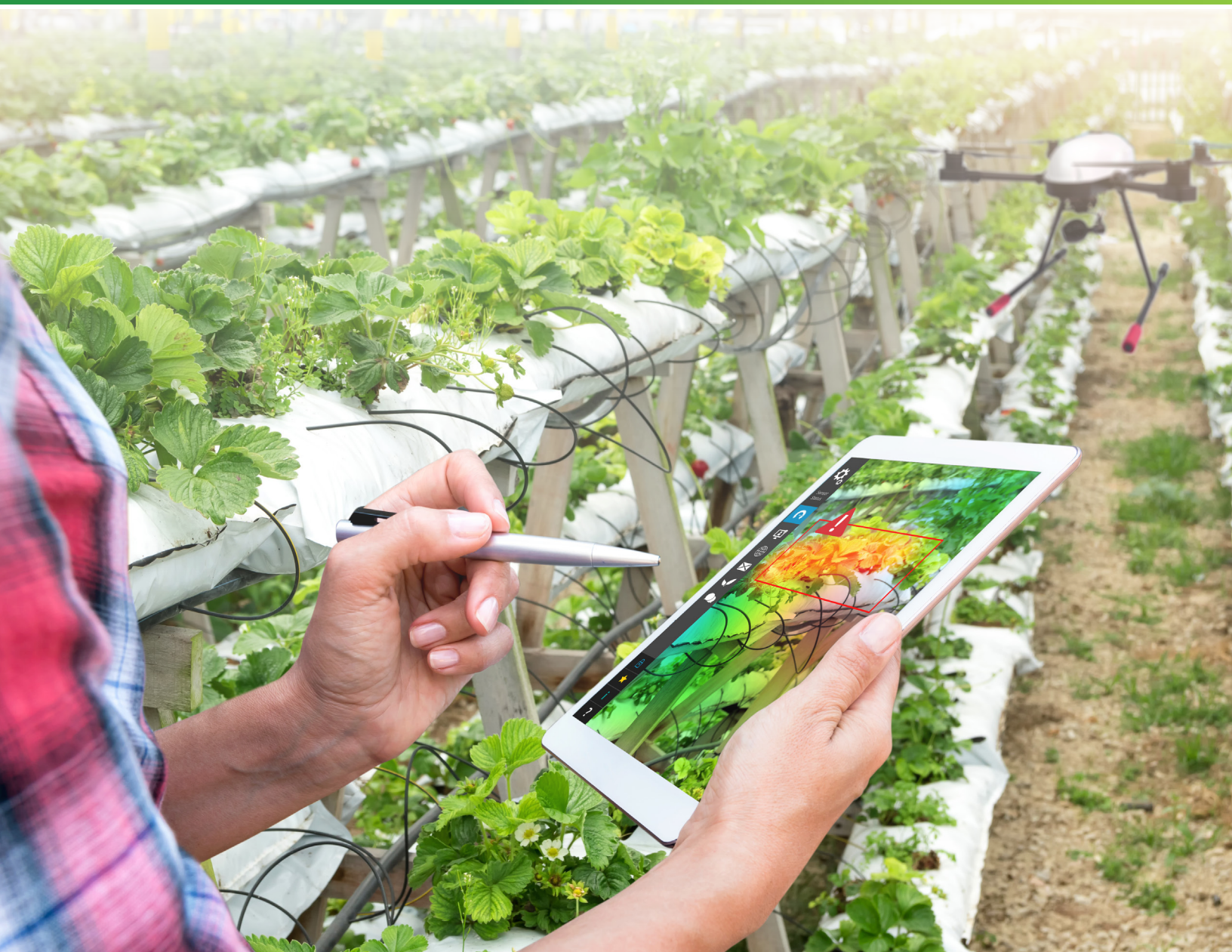# AIC2019

Artificial Intelligence and Robotics in Agri-Food
A Policy Conference

CONFERENCE PROGRAM

November 4 - 6, 2019 · Saskatoon, SK

Welcome to Saskatoon!

Dear attendees,

We are pleased to welcome you to the 2019 Agri-food Innovation Council's annual conference.

This year's theme is artificial intelligence and robotics in the agri-food sector. With technology evolving rapidly, there is a need to reflect and implement policies to better support its integration and adoption in the agri-food sector.

We are pleased to provide delegates a line-up of impressive speakers from government, politics, academic, business, NGOs in the agri-food sector and producers. The diversity of background is meant to provide you with a good overview of the issue.

AIC conferences are meant to start a process. In this case, our hope is that the conference will enable all of us to start developing policies. AIC will then advocate for these policies in order to further research and innovation in the agri-food sector.

Saskatchewan is the ideal location for this conference. The province is a hub of activity in agri-food research and innovation, has 30% of the ag-biotech activity in Canada and is a warm and welcoming place. Warm isn't meant to describe the weather in November but rather the way AIC has been welcomed by local members and stakeholders.

We sincerely thank all of our partners for their generous support and all of you who are attending and contributing to the dialogue.

Please make the most of the coming days.

Dr. Wilf Keller, PhD, PAg
Chair of the Board of the Directors, Agri-food Innovation Council

Serge Buy
CEO, Agri-food Innovation Council

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Thanks to our valued Conference Partners!

The Agri-food Innovation Council gratefully acknowledges our partners for their generous support of AIC2019.

Platinum Level

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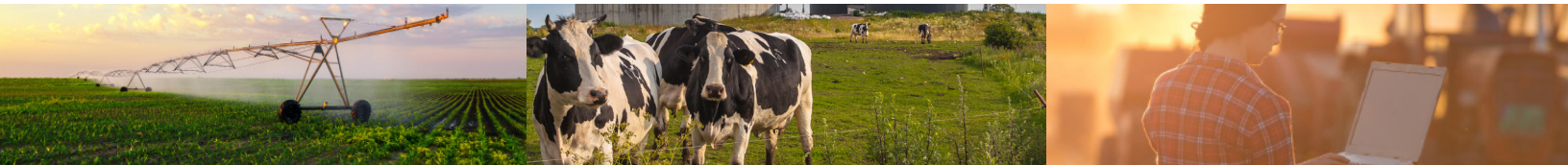## Silver Level

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Bronze Level

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SCHEDULE AT-A-GLANCE

Day 1	Monday, November 4th
3:00 p.m. – 6:00 p.m.	Registration Opens
6:00 p.m. – 8:00 p.m.	**Welcome Reception** Guest Speaker: The Honourable David Marit, Minister of Agriculture for the Province of Saskatchewan William Pascoe Room

All sessions will take place in the Battleford Room

Day 2	Tuesday, November 5th
7:30 a.m. – 8:15 a.m.	Hot Breakfast
8:15 a.m. – 9:00 a.m	**Moderated Session - Public Policy in the Agri-Food Innovation Space** The Honourable Brad Wall, Strategic Advisor with Osler, Hoskin & Harcourt LLP, former Saskatchewan Premier
9:00 a.m. – 10:00 a.m.	**Panel - How is Robotics Changing Agri-Food** Dr. Brian Lynch, Research Scientist, Vineland Research and Innovation Centre David Yee, Vice President, Saskatchewan, Prairie Agricultural Machinery Institute
10:00 a.m. – 10:15 a.m.	Networking Break
10:15 a.m. – 11:00 a.m.	**Invited Speaker - Food 5.0 - How We Feed the Future** Robert Saik, CEO, DOT Autonomous Farm Solutions
11:00 a.m. – 12:00 p.m.	**Panel - How is AI Changing Agri-Food** Dawn Trautman, Manager of Smart Agriculture and Food Innovation, Alberta Innovates Dr. Ian Stavness, Department of Computer Science, University of Sasktchewan
12:00 p.m. – 1:15 p.m.	Networking Luncheon
1:15 p.m. – 2:30 p.m.	**The Challenge of Adoption of New Technologies** Dr. Vic Adamowicz, FRSC, Vice Dean, Faculty of Agriculture, Life & Environmental Sciences, University of Alberta Daved Meakin, Meakin Industrial Ag Corp Leah Olson-Friesen, MBA, Director, Ag-West Bio and Intelliconn
2:30 p.m. – 3:00 p.m.	Networking Break

SCHEDULE AT-A-GLANCE

3:00 p.m. – 4:00 p.m.	**Panel - Key Successes and How they've Changed Agri-Food** Ken Jackson, CEO & Founder, Intelliconn Dr. Stuart Smyth, Associate Professor, Industry Funded Research Chair in Agri-Food Innovation, University of Saskatchewan
4:00 p.m. – 5:30 p.m.	Networking Reception

Day 3	Wednesday, November 6th
7:45 a.m. – 8:30 a.m.	Hot Breakfast
8:30 a.m. – 9:15 a.m.	**Invited Speaker** Dr. Parvin Mousavi, Professor, School of Computing, Queen's University
9:15 a.m. – 10:30 a.m.	**Panel – Trends in AI and Robotics in Agri-Food** James Benki, Dean of Program Development, Agriculture, Olds College Michael Gibbons, Co-Founder & Vice President Products, Provision Analytics Inc. Jason White, Director of Operations, Sightline Innovation Inc.
10:30 a.m. – 11:00 a.m.	Networking Break
11:00 a.m. – 12:00 p.m.	**Panel – Role of Stakeholders in AI & Robotics in Agriculture** Dr. Abdul Jalil, Assistant Deputy Minister, Western Economic Diversification Canada Dr. Terry Fonstad, P.Eng., P.Ag., FEC, Associate Dean Research and Partnerships, College of Engineering, University of Saskatchewan Dr. Shannon Hood-Niefer, MBA, Vice President, Innovation and Technology, Saskatchewan Food Industry Development Centre Inc.
12:00 p.m. – 1:15 p.m.	Networking Luncheon
1:15 p.m. – 1:45 p.m.	**Invited Speaker** Dr. Mary Buhr, Dean, College of Agriculture and Bioresources, University of Saskatchewan
1:45 p.m. – 2:30 p.m.	**Agri-food Chain as it Faces AI & Robotics** The Honourable Dr. Grant Devine, former Saskatchewan Premiere (1982 - 1991)
2:30 p.m. – 3:00 p.m.	**Next Steps – Closing Session** Serge Buy, Chief Executive Officer, Agri-food Innovation Council

SPEAKER PROGRAM

MONDAY, NOVEMBER 4TH

6:00 p.m. – 8:00 p.m.	**Welcome Reception**

Guest Speaker
The Honourable David Marit
Minister of Agriculture for the Province of Saskatchewan

On August 15, 2018, David was appointed Minister of Agriculture and Minister responsible for Saskatchewan Crop Insurance Corporation.

David currently owns and operates a farm with his brother and in addition to a busy professional life, has volunteered extensively. Born and raised in the area, he has very strong ties to his community.

David began serving on RM Council in 1993 and in 1999 was elected to the SARM Board as Director in Division 2. He would go on to serve as SARM President from 2006-2014 until winning the nomination for the Saskatchewan Party.

TUESDAY, NOVEMBER 5TH

7:30 a.m. – 8:15 a.m.	**Hot Breakfast**
8:15 a.m. – 9:00 a.m.	**Moderated Session: Public Policy in the Agri-Food Innovation Space**

The Honourable Brad Wall
Special Advisor, Osler, Hoskin & Harcourt LLP, Former Premier of Saskatchewan

Public Policy in the Agri-food Innovation Space

The Honourable Brad Wall, Former Saskatchewan Premier will respond to questions in a session on Public Policy in the Agri-Food Innovation Space.

9:00 a.m. – 10:00 a.m.	Panel – How is Robotics Changing Agri-Food

Dr. Brian Lynch
Research Scientist, Robotics & Automation, Vineland Research and Innovation Centre

Robotics for Horticulture: Balancing Performance and Cost

Vineland Research and Innovation Centre is currently aiming to reduce labour costs in the horticulture industry by developing novel robotics and automation solutions. This presentation will give some insight into past and current projects, focusing primarily on robotic harvesting and packaging of cucumbers, as well as our vision for the future of the industry.

David Yee
Vice President Operations, Saskatchewan, Prairie Agricultural Machinery Institute

Digital On Farm and Post Farm Gate

The world is quickly hurtling towards a new reality in the farming economy. The buzzwords of Digital, Precision, AI, Autonomous is entering into the agricultural lexicon, and in some cases landing on the doorsteps of agricultural producers in the form of services and new devices. How do these new technologies fit within the typically conservative and traditional world of farming? How do we realize the benefits of these technologies? Do these technologies actually offer a consistent return on investment to the producers and society in general? Where should these new technologies be focusing to make a difference within the agricultural sector? Finally, what is the paradigm we should be looking towards to create a more efficient, effective and sustainable farm economy?

10:00 a.m. – 10:15 a.m.	Networking Break
10:15 a.m. – 11:00 a.m.	Invited Speaker

Robert Saik
CEO, DOT Autonomous Farm Solutions

Food 5.0 – How We Feed the Future

While denominations such as paleo, vegan and organic debate which is "the way", we're ignoring a truth that affects us all: to support a population nearing 10 billion by 2050, agriculture must become infinitely sustainable.

To feed the world, we have to grow 10,000 years' worth of food in the next thirty years, which means farmers worldwide must increase food production by 60 to 70 percent.

Robert Saik's book is about the small percentage of those "farmers of consequence" being called upon to grow the vast majority of the world's staple food supply. While mighty in their ability, they need support from a general public that increasingly has no idea how they operate.

In Food 5.0, Robert takes you on a journey from the "muscle era" of farming to a future where the convergence of new technologies like sensors, robotics, and machine learning make infinite sustainability achievable. With the veil lifted on modern agriculture practices, you'll be inspired to contribute to a culture where farmers can adopt the science and tools, they need to carry out their mission of feeding the planet.

11:00 a.m. – 12:00 p.m.	Panel – How is AI Changing Agri-Food

Dawn Trautman
Manager of Smart Agriculture and Food Innovation, Alberta Innovates

Developments in Agriculture: What's so 'Smart' about Artificial Intelligence?

Over the past five to seven years, a new set of practices utilizing information and communication technologies indicates that we are entering a digital revolution in agriculture, where connected sensors, the Internet of Things (IoT), autonomous vehicles, robots, and big data analytics will be essential in effectively feeding tomorrow's world. 'Smart' technologies are changing the way farming is done; these technologies allow producers to look beyond what the eye can see, by collecting non-traditional data and employing analytics to produce food that is both sustainable and profitable. Dawn will speak on recent developments in integrating artificial intelligence in agriculture, touching on how the newly federally supported Canadian Agri-Food Automation and Intelligence Network (CAAIN) fits into the space. Notably, CAAIN will help drive increased precision, productivity and premiums for Canada's agri-food market by linking techniques in artificial intelligence, advanced sensor technologies, hyperspectral imaging, and blockchain applications. The future of agriculture will be smart, connected, and digital, and it might well be closer than we think.

Dr. Ian Stavness
Department of Computer Science, University of Saskatchewan

Imaging and Deep Learning in Smart Plant Breeding

Deep learning technology has the potential to transform many aspects of the agri-food sector. Upstream from growers, deep learning approaches are already having an impact on crop breeding programs as drone imaging is being rapidly adopted to augment and enhance manual assessment of crop traits in field trials. Extracting trait information from images of plants and crops remains a core challenge for the field. Deep learning approaches have shown promising initial results for meeting the challenge, particularly for outdoor images of plant and crops that are captured under highly variable conditions in terms of lighting, wind, and ground background. In this talk, Dr. Stavness will discuss our efforts at the Plant Phenotyping and Imaging Research Center (P2IRC) in Saskatoon, Canada for collecting, organizing, and analyzing images of outdoor crop breeding fields. He will also provide some perspectives on how imaging and deep learning approaches developed for crop breeding can have an impact in other agri-food areas.

12:00 p.m. – 1:15 p.m.	Networking Luncheon
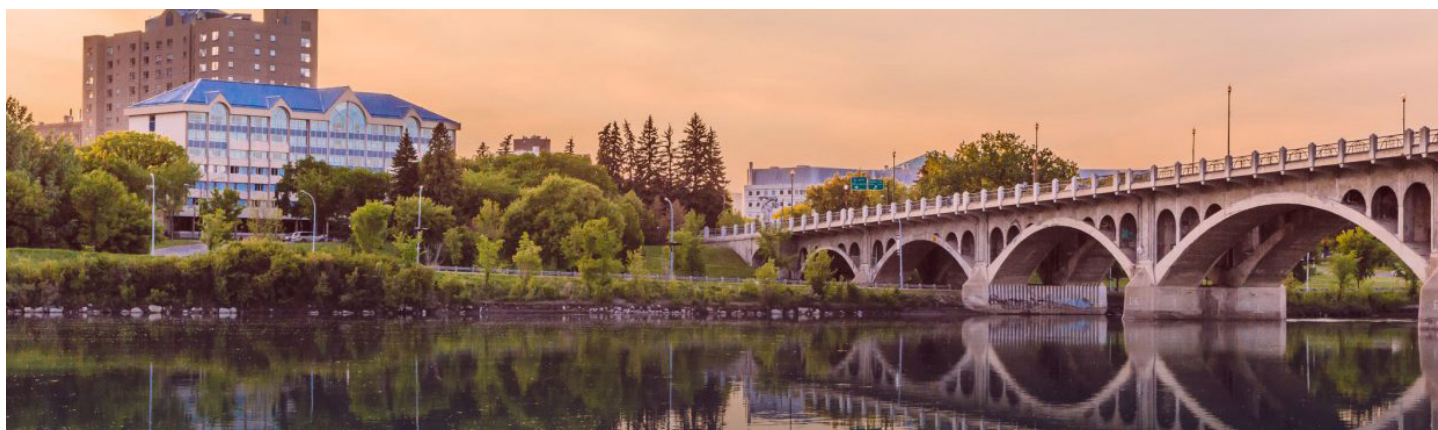
1:15 p.m. – 2:30 p.m.	The Challenge of Adoption of New Technologies

Dr. Vic Adamowicz, FRSC
Vice Dean, Faculty of Agriculture, Life & Environmental Sciences, University of Alberta

The Challenge of Adoption of New Technologies: A Consumer Research Perspective.

Dr. Vic Adamowicz is a distinguished university Professor in the Department of Resource Economics and Environmental Sociology, University of Alberta. His research has focused on the economic valuation of environmental amenities and ecosystem services and the incorporation of environmental values into economic analysis. His research also involves the analysis of choice behavior with applications to food demand, recreation, and environmental quality.

Daved Meakin, P.Eng.
Meakin Industrial Ag Corp

Knowing Where to Draw the Line on New Technology - Every Farm has a Different Line

Daved is a 4th generation farmer from Langham Saskatchewan. After completing his degree in Agricultural & Bioresource Engineering at the U of S, he earned his P.Eng designation while working in the farm equipment manufacturing industry. He then returned home in 2004 to continue to build the family farm which now covers 4000 acres, as well as an agricultural contracting business. Daved uses his engineering background to constantly assess which technologies to adopt on their family farm.

Leah Olson-Friesen, MBA
Director, Ag-West Bio and Intelliconn

AI & Robotics Adoption - A Producer's Perspective

Leah Olson is a visionary leader with over 20 years' experience building and leading high performing teams in the private and public sectors across Canada. She was recently recognized as one of Concordia University's top 50 under 50 shaping business for her leadership in technology and entrepreneurship.

Her past roles include: CEO of DOT Technology Corp., CEO of SeedMaster Manufacturing, President of the Agricultural Manufacturers of Canada and Marketing and Communications Lead for Zoetis Canada. Leah has a MBA from Queen's University and a master's degree in public policy and public administration from Concordia University.

2:30 p.m. – 3:00 p.m.	**Networking Break**
3:00 p.m. – 4:00 p.m.	**Panel – Key Successes and How they've Changed Agri-Food**

Ken Jackson
CEO & Founder, Intelliconn

The Digital Chasm in the Food Chain

There is a substantial gap in information from the producer to the processor-shipper which results in missed food safety issues, grain spoilage, underutilization and undervaluation of grain. Intelliconn is developing a product which utilizes hardware and software to digitize and track grain quality and close this gap, providing transparency and traceability, and getting more and better food from the field to the table.

Dr. Stuart Smyth
Associate Professor, Department of Agricultural and Resource Economics, University of Saskatchewan

Digitized Agriculture: Sustainability and Regulation

The introduction and adoption of various digital technologies in agriculture are increasing year after year. The various aspects of precision agriculture technologies are beginning to identify benefits such as reduced chemical and fertilizer use in crop agriculture. While the economic benefits of this will be significant for farmers, a significant spill-over benefit will be the ability to quantify the reduced environmental impacts. Regulations regarding chemical and fertilizer run-offs have increased in some jurisdictions within Canada in the past few years and further environmental regulations on agriculture should be expected. This presentation will highlight how new digital technologies may contribute to providing the evidence required to inform policy makers about the increasing sustainability of agriculture.

4:00 p.m. – 5:30 p.m.	**Networking Reception**

WEDNESDAY, NOVEMBER 6TH

7:45 a.m. – 8:30 a.m.	**Hot Breakfast**
8:30 a.m. – 9:15 a.m.	**Invited Speaker**

Dr. Parvin Mousavi
Professor, School of Computing, Queen's University

Dr. Mousavi will discuss the impact of AI on our society and its possible impacts on our sector. It is important for the Agri-Food sector to take into account societal impacts and acceptance of AI & Robotics as we are increasing our embrace of these new technologies.

9:15 a.m. – 10:30 a.m.	Panel – Trends in AI and Robotics in Agri-Food
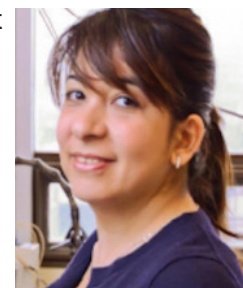
James Benki
Dean of Program Development, Agriculture, Olds College

Olds College Smart Farm – Transformer… not Soup

Olds College began its Smart Farm journey in 2018. Owning 2,300 acres of agricultural land and having the guiding principles of being agnostic to source technologies, the Olds College Smart Farm can generate all necessary data, use expertise of qualified personnel and partners, and disseminate results through academic processes and demonstration capabilities. Olds College will also leverage digital agriculture technologies to connect Smart Farm Operations, Applied Research, and current and future Academic programs. Next generation digital farming technologies based on machine learning (ML) and artificial intelligence (AI) will also be a priority, however the Olds College team needs to identify current and future obstacles in on-farm data collection to ensure we transition our current practices from fragmented datasets to comprehensive training datasets for future ML and AI integration.

Michael Gibbons
Co-Founder, VP Products, Provision Analytics Inc.

Leveraging Machine Learning Algorithms and Advanced Traceability to Build Greater Value in the Food Supply Chain

Provision Analytics' panel discussion on Trends in AI and Robotics in Agrifood will focus on using AI to bring agrifood specific information to the end user. With the upcoming 5G rollout and phones and tablets with AI enable chipsets, the stage is set to use AI to give the customer a holistic view of the food they consume. Utilizing Artificial Neural Networks for video and image recognition, NPL deep learning and probability determination, we will give the consumers real insight into such items as food traceability, product information and Health and Safety recall information - all in near realtime and on their handheld device.

Jason White
Director of Operations, Sightline Innovation Inc.

Collaborating on Data-Driven Projects

The ability for multiple organizations to collaborate on a data-driven R&D project will determine the business winners and losers in the coming years. Data is a valuable asset that is often proprietary, competitively sensitive, and can represent millions of dollars in R&D investment. Allowing unfettered access is simply not an option for most companies. However, data is the lifeblood of artificial intelligence and machine learning - the technologies that will drive innovation, product development, and efficiencies across all economic sectors.

10:30 a.m. – 11:00 a.m.	**Networking Break**
11:00 a.m. – 12:00 p.m.	**Panel – Role of Stakeholders in AI & Robotics in Agriculture**

Dr. Abdul Jalil
Assistant Deputy Minister, Western Economic Diversification Canada

Prior to this position, Dr. Jalil worked at the Agriculture Research Branch of Saskatchewan Ministry of Agriculture, most recently as Executive Director. He has served on various boards including Ag-West Bio Inc., Prairie Agricultural Machinery Institute (PAMI) and POS Bio-Sciences. His diverse career includes experiences in many areas including teaching, research, and administration.
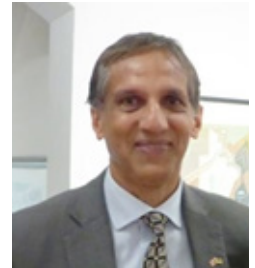
Dr. Terry Fonstad, P.Eng.
Associate Dean Research and Partnerships & Associate Professor, College of Engineering, University of Saskatchewan

Dr. Fonstad is currently serving as the Associate Dean Research and Partnerships for the College of Engineering at the University of Saskatchewan. In recent strategic planning, "Engineering for Agriculture" emerged as a top priority and opportunity for the College. Dr. Fonstad's personal research is in the area of environmental management for animal agriculture. Current research includes environmental management for beef production associated with the development of the Livestock and Forage Centre of Excellence at the U of S and improved biosecurity in the swine transport industry in response to recent PEDv and ASF concerns. Dr. Fonstad is also serving as the 2019-2020 president of the Association of Professional Engineers and Geoscientists of Saskatchewan which regulates the professions in the province.

Dr. Shannon Hood-Niefer, MBA
Vice President, Innovation and Technology, Saskatchewan Food Industry Development Centre Inc.

Dr. Shannon Hood-Niefer is passionate about agriculture and food. She is committed to helping food and ingredient companies meet their goals with advising on technical or business aspects. Shannon enjoys helping companies develop innovation strategies and build a network of collaborators.

Dr. Hood-Niefer has over 15 years of experience in the food industry conducting research and development on various commodities in the agriculture sector, food quality and safety, and extrusion technology.

12:00 p.m. – 1:15 p.m.	**Networking Luncheon**
1:15 p.m. – 1:45 p.m.	**Invited speaker**

Dr. Mary Buhr
Dean, College of Agriculture and Bioresources, University of Saskatchewan

So – How do we Teach for Such Unknowns?

Speed is the scourge of the knowledge economy – not the drug, but the breath-taking daily rate of information inundating us. Today's videos, apps and twitter sensations challenge today's learners and teachers – how do you recognise a truly worthy innovation among a sea of daily novelties? What is worth learning? How and what do we teach so today's students can thrive, or even just survive, in tomorrow's unpredictable realities?

1:45 p.m. – 2:30 p.m.	**Agri-Food Chain as it Faces AI & Robotics**

The Honourable Dr. Grant Devine
Former Saskatchewan Premier (1982 - 1991)

The AgTech world coupled with real time intelligence and robotic achievements combine to set the stage for evolutionary and destructive forces in the entire food chain. Recent AgTech accelerator experience in Silicon Valley exposed the real depth, breath and speed of technological change in our industry today. While all this is exciting make no mistake that "destructive capitalism" is at play.

2:30 p.m. – 3:00 p.m.	**Next Steps – Closing Session**

Serge Buy
Chief Executive Officer, Agri-food Innovation Council

Serge is the Chief Executive Officer of the Agri-food Innovation Council. He also runs a public affairs company (Flagship Solutions) based in Ottawa.

Proud to play our part

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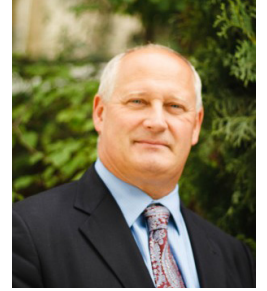
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