



Program Outline for Training Course

on

AI in Agriculture and Food Supply

14-23 December 2020

Organized by:



AIT Extension
Executive & Professional Education

Registration and Further Details:

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Background

Demand for agricultural products will increase greatly in the future due to an increasing world population and higher meat or fish/seafood consumption per capita. The Food and Agriculture Organization (FAO) of the United Nations estimates that the world population will reach to 10 billion in 2050. Higher income per capita has brought about the expansion of the middle class, especially in populous developing countries and helped change consumer behavior towards a preference for better and protein-based food. Globally, meat consumption per capita is estimated to be increasing by 1.2% annually. This development will hike demand for agricultural products, considering that one kilogram of meat requires about 2-7 kilograms of agricultural products as feed.

The usual agricultural practices will not be able to feed the World, as demand for agricultural products increases while agricultural land remains limited. In many ways today's agricultural practices are inefficient, with irrigation wasting an estimated 80-90% of the water used and about 40% of farms globally overuse fertilizers and chemicals, leading to harmful effects on soil and water quality, and consequently yield per unit area. At the same time some farms underuse fertilizers, leading to less-than-optimal yields. The agricultural sector has been developing genetic modification and cross species breeding techniques to obtain seeds that can endure harsher environments and provide higher yields, but these technologies might not be up to the challenge of raising agricultural products by 70% over the next 30 years. Farmers should therefore seek new ways to increase production per unit area.

More innovative agricultural technologies should be adopted in order to enable the agricultural sector to feed an increasing world population. Digital Technologies (DTs) can tackle many food production and distribution challenges such as low productivity and inefficiency, high transaction costs, limited use of inputs and minimal commercialization. Keeping in mind that the 4th Industrial Revolution (i.e., emergence of ICT or DTs) is behind the disruption in all sectors and industries, agriculture, one of the oldest industries in human history, is also evolving more rapidly than ever. Smart farming technology is a technological solution that aims to create highly added value by integrating existing agricultural technologies with cutting-edge ICT solutions including Sensors, Drone Technology, GIS and RS, Artificial Intelligence (AI), AI Bots or Autonomous Robots, Internet of Things (IoT), Big Data and Data Analytics.

AIT Extension Program on Digital Disruption in Agriculture and Food Industry will be a set of independent as well as interconnected training courses (online, face2face, blended), which have been designed to equip you with better understanding, required knowledge and skills on Digital Transformation in Agriculture & Food Industry. One of the interconnected training courses is "AI in Agriculture and Food Supply".

Artificial Intelligence (AI) technology is supporting different sectors to boost productivity and efficiency. AI solutions are assisting to overcome the traditional challenges in every field. Likewise, AI in agriculture is helping farmers to improve their efficiency and productivity, and to reduce environmental hostile impacts. Agriculture is both a major industry and foundation of many country's economy. Factors such as climate change, population growth and food security concerns have propelled the industry into seeking more innovative approaches to protecting and improving crop yield. As a result, AI is steadily emerging as part of the industry's technological evolution. The agriculture industry has strongly

Today, many of the new startups in agricultural sector are adapting AI-enabled approaches to increase the efficiency of agricultural or farming systems and distribution. The recent studies reported that the global market size for AI in Agriculture is expected to reach 1550 million US\$ by the end of 2025. Implementing AI-empowered approaches could detect soil fertility issue, diseases, pest infestation and climate changes sooner and respond smartly. Many successful businesses in agricultural sector are now getting help of AI-enabled approaches in processing agricultural data and receiving decisions to reduce the adverse outcomes.

and openly embraced AI into their practice to change the overall outcome. AI is shifting the way our food is now produced, where the agricultural sector's emissions have decreased by 20%. Adapting AI technology is also helping to control and manage any uninvited natural condition.

The overall objective of this training course is to explore applications of AI in Agriculture and Food Supply to provide participants with an understanding of current and emerging trends, necessary skills required and present representative examples of popular AI applications.

Learning Outcomes

At the end of this training course participants will have better understanding on:

- Advantage of implementing AI in Agriculture and Food Industry.
- AI for improved crop management practices - efficient ways to produce, harvest and sell essential crops.
- AI solutions to solve the challenges like climate variation, soil nutrition, infestation of pests and weeds that reduces yields by farmers.
- Strengthened knowledge on efficient and sustainable agro-based businesses using AI and other ICT tools.

Target Audience

- Agriculturists, Practitioners, Decisionmakers/Policy makers and Development Partners.
- Those with a responsibility or interest in the intersection of ICT, digital tools and agriculture across the world.
- No prior background on AI or in DAT is required.

Course Modules

- 1) Introduction to AI (Artificial Intelligence)
 - A brief introduction to AI
 - Types of AI capabilities & techniques used
 - AI and its potential for different types of organizations (public and private)
 - Understanding the limitations of AI
- 2) AI in Agri-Business and Food Industry
 - Appropriate AI techniques and operational opportunities
 - Technology available for AI relevant to Agro-Industry and Food Supply
 - AI in decision making for agricultural professionals and farmers
- 3) The Future of AI
 - A positive future with AI and ML (Machine Learning)
 - The Symbiosis of Distributed Ledger and Machine Learning as a Relevance for Autonomy in the Internet of Things (IoT)
 - Benefits and Risks of AI
 - Impact and Benefits of AI for a sustainable future Agri-Business and Food Industry
- 4) Case Studies on application of AI in Agriculture and Food Supply
 - Autonomous Tractors and Agricultural Robots
 - Crop and Soil Monitoring
 - Controlling Pest Infestation
 - Precision Farming with Predictive Analytics

Mode of Delivery

- The Courses will be delivered via ONLINE within a duration of 2 weeks period, where the actual contact hours will be 18 hours.
- Participants will have opportunity to interact with trainers for 9 hours and the remaining 9 hours will be assisted learning, virtual tour and demonstration.
- An exam or assessment will be held at the end of each Course, and participants will have to pass it and be present in all sessions to be qualified for the Certificate/Transcript.

Training Platform

- AIT Moodle
- ZOOM
- Online Collaboration Software (for brainstorm, groupwork)
- Virtual Field/Laboratory Visits and Demonstrations

Trainers/Facilitators

Professors and Researchers from AIT, Professionals and Practitioners from International Organizations and Relevant Companies/Industries.

Course Schedule

Start On: 14-23 December 2020

Duration: 02 Weeks, Online (09 hours per Week)

Fee and Registration

300 USD per person per course.

Interested participants are requested to communicate or send queries for the Deadline for Registration, Group Registration Fee with/without Credit Card Payment followed by Normal Registration Fee with bank transfer options.

For Payment:

Payment by Credit card: [please download the credit card payment form](#) and kindly fill up the information that requires then send it back to Mr. Md. Anishur Rahman, Program Coordinator at anish@ait.ac.th

Payment by bank transfer:

Pls. transfer your registration fee in full to:

Account Name: Asian Institute of Technology
Account Number: Current A/C no. 468-046301-2
Bank Name: Siam Commercial Bank Co., LTD
Thammasat Hospital Sub-branch
Pathum Thani 12120, THAILAND
SWIFT CODE: SICOTHBK

or

Account Name: Asian Institute of Technology
Account Number: 381-100099-9
Bank Name: Kasikorn Bank Public Company Limited
Klong Luang Branch
Pathum Thani 12120, Thailand

SWIFT CODE: KASITHBK

** Pls. provide a copy of the pay-in-slip or transfer statement to Mr. Md. Anishur Rahman at anish@ait.ac.th or Ms. Marilyn Alcantara at malcantara@ait.ac.th for reference and registration confirmation.

Term & Conditions: The Organizer reserves the right to change and/or cancel the training program due to unforeseen circumstances or low enrollment.

Certificate

Successful Candidate will be awarded with Certificate (attendance & completion) and Transcript.

Enquiry and Further Details

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