Society for Nutrition Education and Behavior

Re-imagining Nutrition Education and Behavior Role for Smart Practice

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Incoming Chair

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About Tatyana El-Kour, MA, MS, RDN, FAND

- Doctor of Philosophy (Ph.D.) Candidate in Psychology with a concentration in Media Psychology. Specialized Concentration: Social Impact of Mobile Media and Immersive Technology.
- 2018 recipient of The Michael R. Neal Legacy Award in recognition of collaboration, scholarship, innovation, and advocacy at Fielding Graduate University
- 2018 inducted lifetime member of the PSI CHI International Honor Society in Psychology.
- 2017 recipient of the Worldwide Network for Gender Empowerment Research Fellowship at Fielding Graduate University for the project entitled: "Empowerment Matters: How redefining Mothers' Role in Crisis Can Help Save Lives."
- **2016 recipient of the Wagenheim Endowed Scholarship for International Doctoral Students at Fielding Graduate University.**
- An experienced global health and nutrition strategist with over 20 years of experience in the United Nations, global healthcare and humanitarian organizations, medical, corporate, and academic environments. Currently coordinates the health and nutrition programming for Action Against Hunger in Syria.

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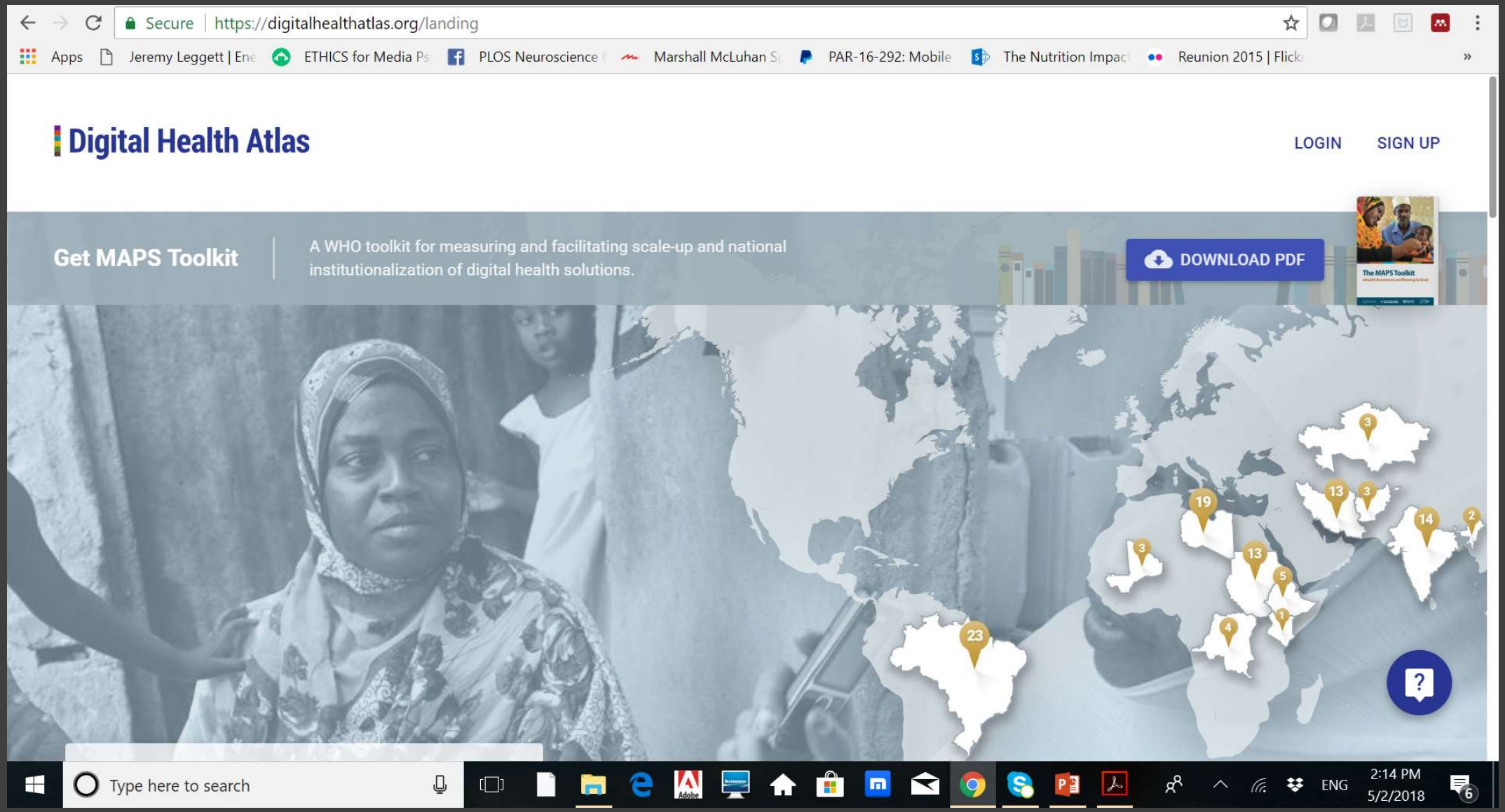
Pre-COVID 19 Technology Context

- Artificial intelligence made available
- Geographic information systems
- Smartphone technology is mainstream
- Holograms and 3D
- Virtual/Mixed reality makes a comeback
- Augmented reality increasingly common
- 3D food printing is becoming a mainstream consumer technology
- Smart watches are the latest must have gadgets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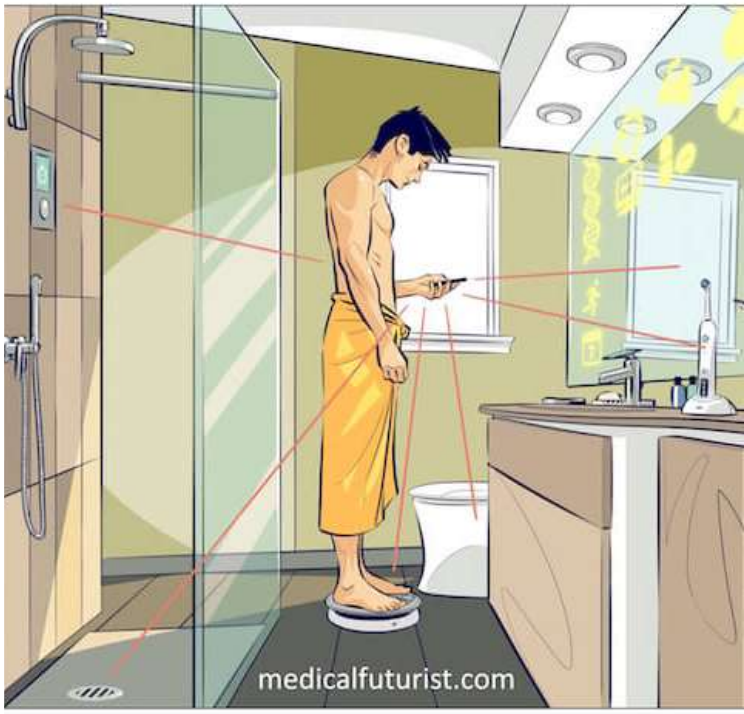


Augmented Interaction

Social Eating Augmented Reality

The knowledge of joining a crowd and knowing:

- Who do I eat with here?
- Where do I know them from?
- Who should I get to know?
- Who here is on the same diet?

Why immersive experiences are needed when it comes to sensory feeding, or are they not?

Technology-Mediated Appetite
Virtual Reality, Augmented Reality & Telerobotics

Conditions

- Food and Eating disorders
- Food phobias
- Food addictions and cravings
- Obesity
- Personalized nutrition

Nutrition-centered mediated potential in the health & nutrition care landscape

- Nutrition & social behavior change.
- Improved assessment, understanding, and treatment of both mental health and nutrition disorders (Gutiérrez-Maldonado, Wiederhold, & Riva, 2016).
- As a cue exposure tool for reducing food craving (Gutiérrez-Maldonado, Wiederhold, & Riva, 2016).
- Enhanced personal and clinical change

What does the evidence tell us about mediated and technology-driven practice?

- User-driven control
- Active participation with 3D
- Learn to manipulate problems
- Safer, less embarrassing
- Administered in traditional setting
- Potential for visualisation
- Active learning – encourages motivation
- Objectively measure behaviour
- Personalized therapy and treatment
- VR-enhanced CBT was effective in improving weight loss at 1 year follow-up

(Gorinii, Gaggioli, Vigna, & Riva, 2008; Lafond, Riva, Gutierrez-Maldonado, & Wiederhold, 2016; Manzoni, Cesa, Bacchetta, Castelnuovo, Conti, Gaggioli, et.al, 2016)

Imagine your cookbook…
a visually-augmented one

- Real book with empty identifiable pages
- AR headset
- Pay and download a recipe
- System presents new stereo images when the pages are turned

Artificial intelligence suggests recipes based on food photos

Given a still image of a dish filled with food, CSAIL team's deep-learning algorithm recommends ingredients and recipes.

Watch Video

Adam Conner-Simons | Rachel Gordon | CSAIL
July 20, 2017

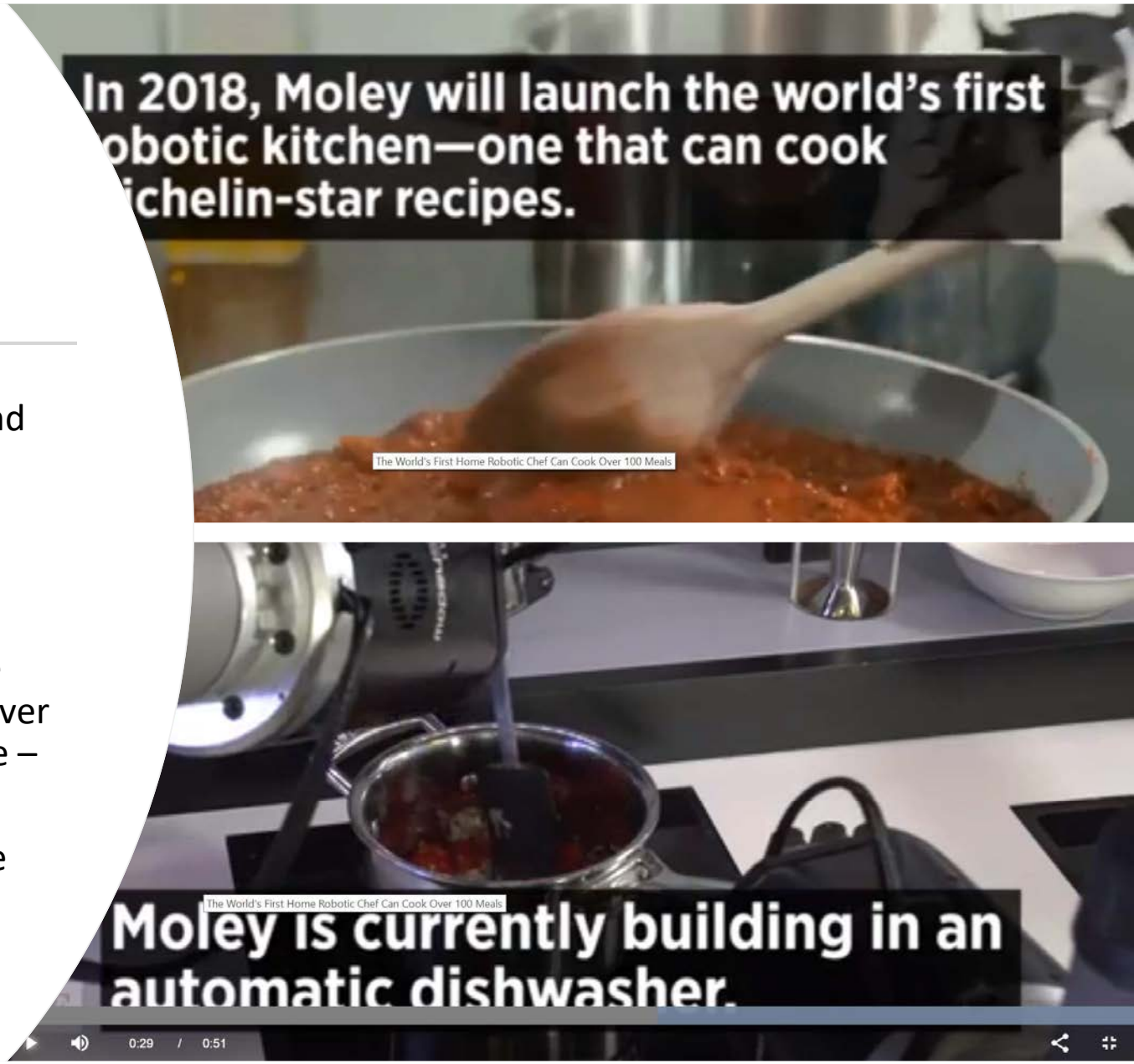
SHARE

There are few things social media users love more than flooding their fee
food. Yet we seldom use these images for much more than a quick scrol

Researchers from MIT's Computer Science and Artificial Intelligence Labo
believe that analyzing photos like these could help us learn recipes and h
people's eating habits. In a new paper with the Qatar Computing Researc
team trained an artificial intelligence system called Pic2Recipe to look at

What AI can do for you now?

- The ability of AI to synthesize images and videos will transform industries ➔Turn food pictures into recipes
- Home-cooked meals made by robotic chefs
- Using artificial intelligence to data mine food molecules that are hidden to uncover functional ingredients that are bioactive – based (Nuritas)
- Create multisensory experiences for the consumer



AI in Restaurants and Food Service

Chatbots and Apps –virtual assistants to respond to customer inquiries and to process and customize customer orders.

Robots –using AI-driven robots to increase capacity and speed of food preparation and delivery.

Recommendation engines – Developers are designing applications which use AI to help consumers choose meals based on their eating preferences.

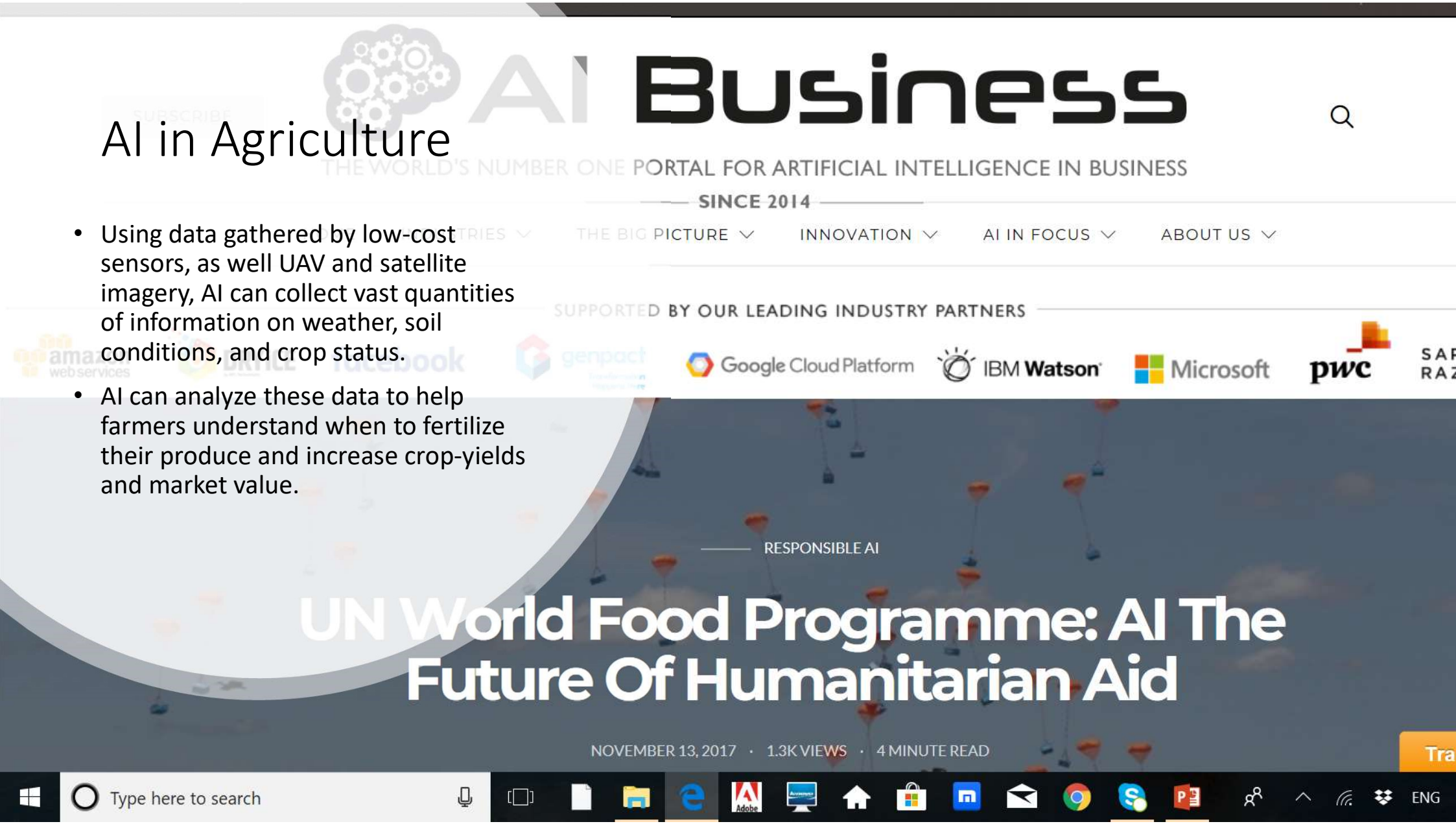
Kiosks –AI-driven Kiosks to reduce customer waiting time and enhance the customer ordering experience.

AI's Healthcare Applications

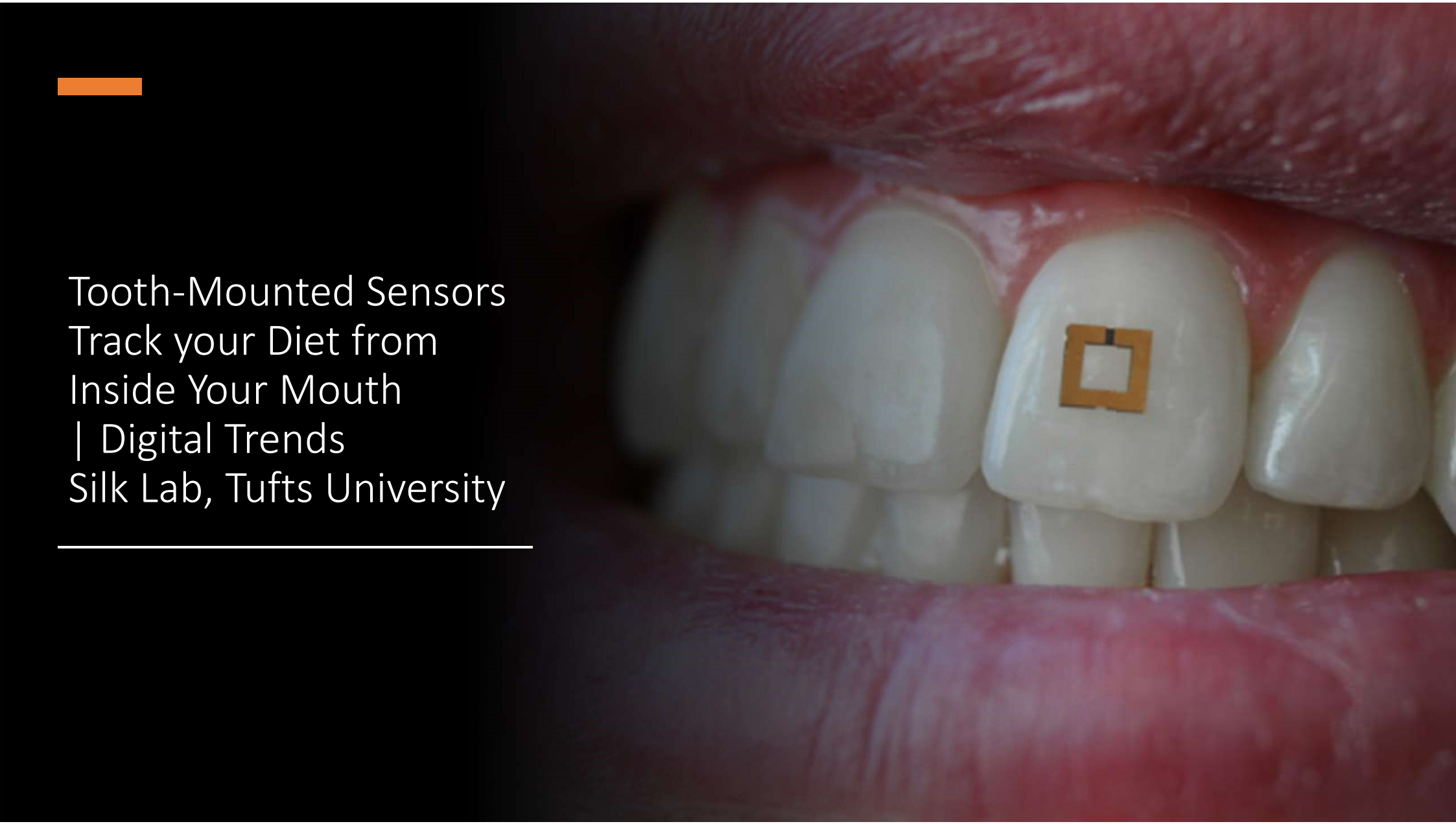
Clinical and decision support
Patient monitoring and coaching
Automated devices to assist in surgery or patient care
Management of healthcare, emergency response, and early warning systems
Mining social media to infer possible health risks
Machine learning to predict patients at risk

AI in Agriculture

- Using data gathered by low-cost sensors, as well UAV and satellite imagery, AI can collect vast quantities of information on weather, soil conditions, and crop status.
- AI can analyze these data to help farmers understand when to fertilize their produce and increase crop-yields and market value.



Tooth-Mounted Sensors Track your Diet from Inside Your Mouth | Digital Trends
Silk Lab, Tufts University

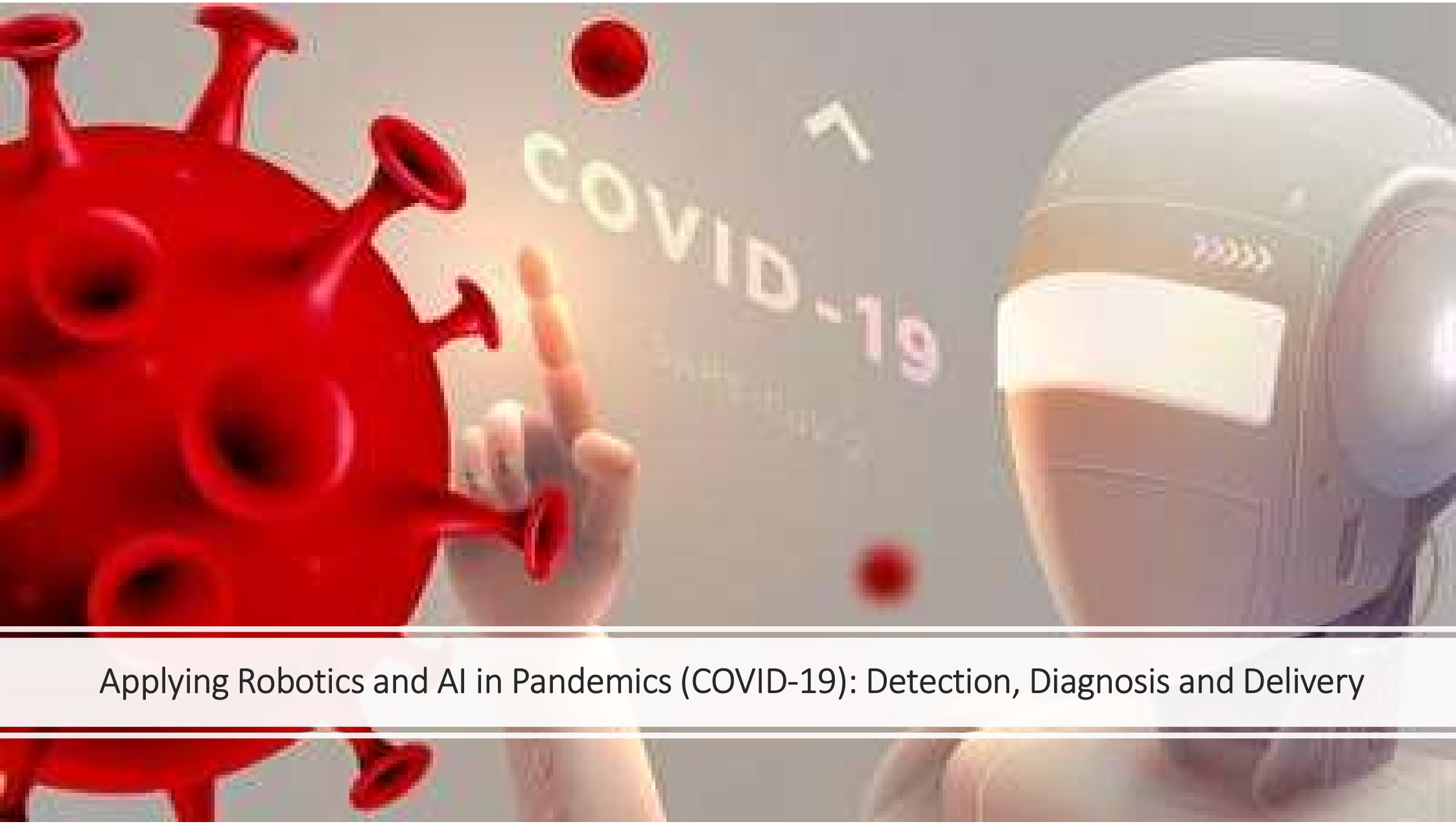


What does the world look like in 2050?

- Giga bit internet
- Hi-Tech & Smart tools will revolutionize the nutrition landscape
- The world's famous dishes at your fingertip
- Mediated-nutritional therapies fight off diseases
- Genetically-engineered "designer food" for the rich?
- Lab-grown meat reduce food insecurity?
- Handheld MRI scanners predicting food addictions
- Food-brain connection can be simulated in Realtime
- Mediated-biosensors

2050 Technology

- More sophisticated artificial intelligence
- Holograms and virtual reality
- Wearables and the internet of things
- 3D printing



Applying Robotics and AI in Pandemics (COVID-19): Detection, Diagnosis and Delivery

What Can AI Do?

- AI can predict the outbreak and can also minimise or even stall the spread of the virus.
- The wrong information present on the social platforms related to COVID 19 can be detected and removed subsequently with the application of AI.
- The clinical trials for drugs and vaccines against this virus can be optimised with the use of AI.
- It can be used to develop robots, which can help undertake sanitisation jobs and perform an online medical examination of the people.
- This technology can produce CT scans which are required for detecting pneumonia caused by a virus.
- The application of this technology is beneficial to manufacture the equipment required for the healthcare system.

Kumar, Gupta, & Srivastava, 2020; Neri, Miele, Coppola, & Grassi, 2020; and Vaishya, Javaid, Khan, & Haleem, 2020).

AI: Is it a Powerful Tool?

- Assessment of risks of infection and screening of population.
- Recognising, explaining and predicting the pattern.
- Restricted use of AI technology driven by lack of data.
- Sometimes the available data are very noisy and outliers.

Kumar, Gupta, & Srivastava, 2020; Neri, Miele, Coppola, & Grassi, 2020; and Vaishya, Javaid, Khan, & Haleem, 2020).

Re-Imagining Our Role