ANIMAL HEALTH, NUTRITION & TECHNOLOGY INNOVATION EUROPE

AI application in livestock: Adding powerful co-pilots to human decision-making

Ranveer Chandra, Chief Technology Officer of Agri-Food, Microsoft

Don't we all want a co-pilot to assist us in our complex daily decision making, allowing us to save money and improve efficiency?

According to Ranveer Chandra from Microsoft, powerful AI driven co-pilots are being built for use in agriculture. And the pace of this technological change is faster than ever before.

Chandra addressed this in his talk at the recent Animal Health, Nutrition and Technology Innovation Europe, held in March in London. The Chief Technology Officer of Agri-Food at Microsoft said: "While Artificial Intelligence (AI) I has been around since 1957, today's availability of - cloud based - high performing computing power and novel microchips allow us to use it such a way that it transforms the way we work and make decisions. This is happening already in many sectors. The potential of AI for arable farming, livestock production, animal health and the whole agrifood chain is huge."

A data-driven mindset

Application of AI allows us to increase the production of good and nutritious food, without harming the planet. Chandra explains: "When we want to producing more with less resources, we have to step up efficiencies. At Microsoft we believe that one of the key enablers to do this is building a data driven agri-food system, all the way from input companies, to farmers, logistic partners, retailers and consumers. If every entity is more data driven, it will make the entire supply chain more connected, which will lead to (new) and improved efficiencies. It will also better support and strengthen business alliances and add value."

Microsoft has been building tech solutions for several components throughout the agrifood supply chain for many years already. Most of them are focused on primary production, the farmers. But there is an increased focused on solutions that lifts up the entire supply chains and specific applications to accelerate R&D and innovation. "For example, AI can be used to invent new ingredients with the right texture, taste, and flavour. Last month, we announced a new partnership with Pacific Northwest National Laboratory to

accelerate scientific discovery around chemistry, energy, and new materials among others. AI allows us to do simulations and laboratory validation in a fraction of the time needed if done by humans", Chandra highlighted.

Multi-model AI approach

While AI in agriculture has huge potential, the lack of enough data to train the models and - as mentioned earlier - the computer power and chips hindered proper scale out. But today's situation is different, and the flight of ChatGPT in the last few years accelerated everything around AI. Chandra explains: "We are applying the multi-model AI approach when we talk about farm animals. This is because we are dealing here with multiple streams of data (compared to single stream data we see in ChatGPT for example). We have camera / sensor data, health data, production data (milk, meat, eggs), R&D data (PDFs, Excel sheets), nutritional data (stored in formulation software), etc. Today, we are better equipped to combine all these different data streams and to come up with equations to model animal health, and hence extract possible parameters that could affect animal health (including some you don't even know yet). This way we can make better predictions, and intervene sooner in the case of an emerging health problem."

For Chandra the innovation around this multi-model AI approach leads to better co-pilots, powerful AI assistants that can be used by diffferent personas in the agrifood chain:

- Farmers: Decision making for seeds, purchases, management
- Agronomists: Communicate with farmers and advisories
- Policy makers: Make policy documents accessible to farmers
- Bankers: Communicate with farmers about loans, insurance
- Supply chain: Coordinate with farmers about prices, food standards
- Ag retailers: Help farmers with purchasing decisions
- Ag/data scientists: AI workflow automation
- Feed manufacturers: Help farmers meet quality standards

Closing the digital divide

Chandra concluded his presentation by addressing that we have to further fine tune the AI multi-model strategy to make them better equipped for agriculture and further improve accuracy. "AI is right here and a lot of people already use it. We have to start using it more in agriculture. Will AI replace humans? I don't think so. I believe that the biggest threat for an agronomist is not AI, but another agronomist, who is using AI as his/her co-pilot. The speed is evolving at a pace we have not seen before, which requires adapting and be constant on the move around this topic. At the same time, we are still facing a digital divide in agriculture (not every farmer has access to a computer and/or internet). Given this incredible potential of AI for agriculture, it is also key to further close digital divide to ensure that AI opportunities are (or soon become) available to all."

Animal Health, Nutrition and Technology Innovation Europe is the sector's premier innovation summit, showcasing the most exciting emerging companies and connecting them with investors and strategic partners.

Our mission is to engage all key participants in the value chain so we can address the full scope of how animal health impacts pet owners, veterinarians, and farmers today.

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