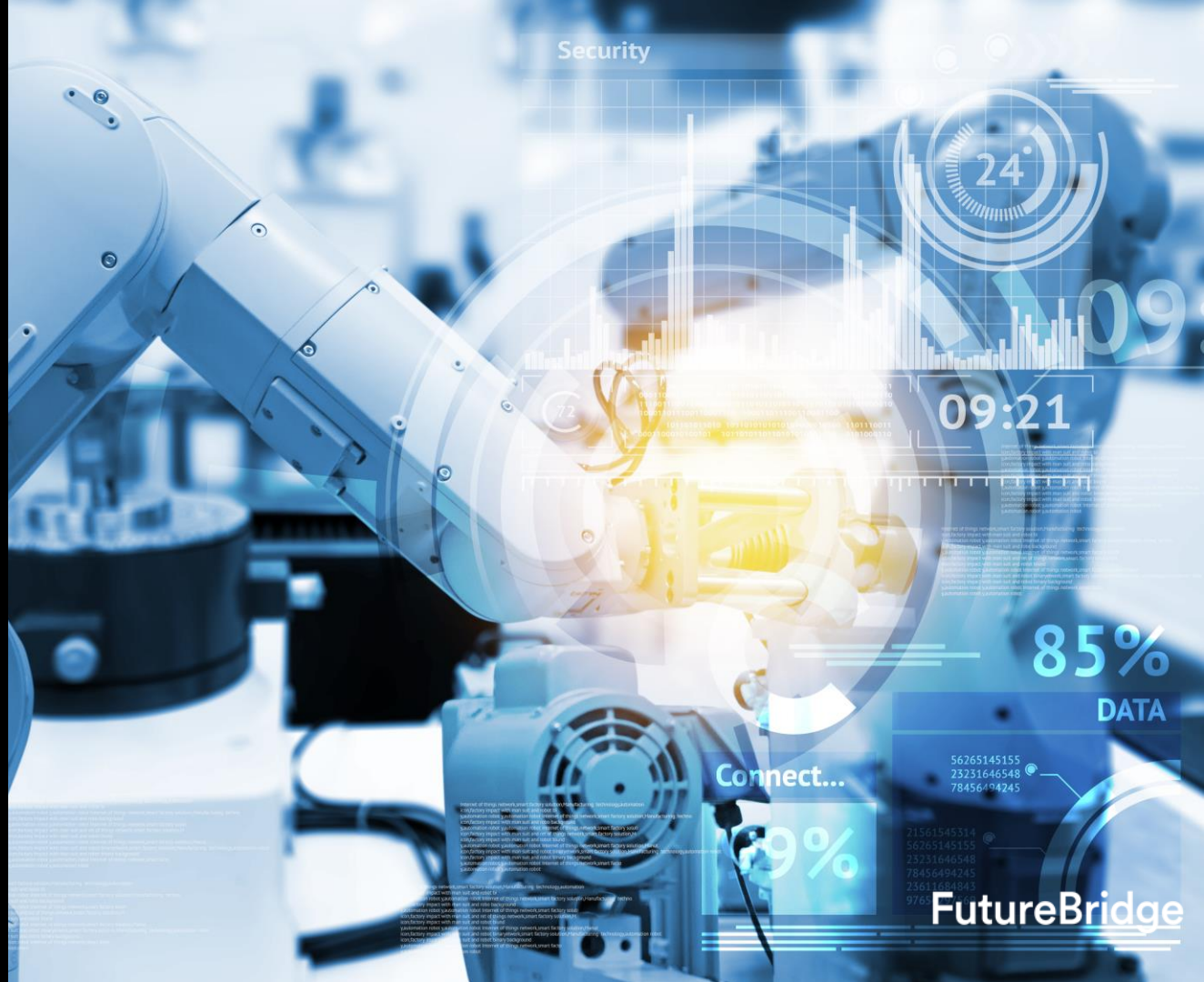
Food Manufacturing

Artificial Intelligence



SPOTLIGHT

#ArtificialIntelligence

- **Artificial intelligence** is gaining traction with established players using its capabilities to analyze **complex data**, **reduce food wastage**, and **optimize food flavors**.
- The **FDA's pilot project** to use **machine learning** to **track imported seafood violations** will increase the technologies used in the food and beverage segment.
- Artificial intelligence capabilities to **reduce food wastage** and **lower processing time** allow it to increase the **sustainability** of **end-product production**.

Artificial intelligence is being utilized to reduce food waste and optimize food flavor

- **ITOCHU launches digital platform for its food supply chain**
- ITOCHU Group launched a forecasting and order optimization solution using artificial intelligence (AI) for its commercial applications and the order placed by Nippon Access to food manufacturers.
- The goal of ITOCHU is to provide services that will help to improve the operational efficiency of production facilities and distribution warehouses owned by partnering food wholesalers and manufacturers as well as reduce food and opportunity losses in retail.

- **Givaudan launches AI tools to optimize food and flavor formulation**
- Givaudan Taste & Wellbeing has launched its Advanced Tools for Modelling (ATOM) tool, which uses artificial intelligence to optimize food and flavor formulation.
- This tool uses artificial intelligence (AI) and data science techniques to reduce errors during food processing. It identifies the negative as well as positive flavors and explores ingredient synergies to deliver the new food and flavor options.

- **FDA begins phase two of Artificial Intelligence Imported Seafood Pilot Program**
- Phase one of the pilot used machine learning to find violative imported seafood shipments.
- After completing the pilot project, the FDA will communicate the findings to promote the use of emerging technologies in solving public health issues.

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Start-ups utilizing artificial intelligence technology

Start-up: Brightseed

Foundation date: 2017

Technology: The company utilizes artificial intelligence to identify new nutrient sources

Start-up: Phood

Foundation date: 2015

Technology: The company utilizes artificial intelligence to reduce food waste by tracking amount of food stored and prepared

Start-up: Afresh Technologies

Foundation date: 2017

Technology: The company utilizes artificial intelligence to track and manage orders for grocery stores

SPOTLIGHT

#3DPrintingInks

- **3D printing** is bringing about a revolutionary change within the **food and beverage sector**, as it has helped companies to simplify the process and also **improve** their **efficiency** while being **cost-effective** at the same time
- When combined with plant-based inks used in 3D printing consumer food choices could help the companies identify the consumer **preferences** and **launch** different products accordingly

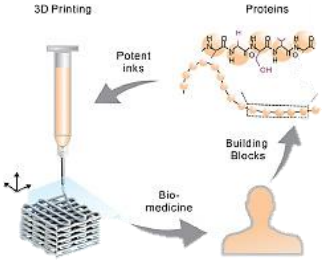
Plant-based protein inks used for 3D printing of foods can also be used for regenerative medicine by manipulating biological, chemical, and physical features

Title: Recent advances in 3D printing with protein-based inks

University: Tufts University, University of Trento, Zhengzhou University

Online publication: 10th February 2021

Technology: 3D printing protein based inks



Research Overview:

- The research study conducted for 3D printing inks plays an essential role in how sensitive a person is to the bitter taste found in for example broccoli, Brussels sprouts, and dark chocolate.
- By exploitation of the **chemical, biological** and **physical features** of protein-based inks can act as an opportunity for tissue engineering as well as for **regenerative medicine**.
- The technology reviewed in the paper has introduced **photo-crossing mechanisms** and **rheological principles**, which underpin a variety of **3D printing techniques**.
- The review has highlighted the recent advancement in the development, design, and biomedical utility of monolithic and composite inks from a range of proteins, including **collagen, silk, fibrinogen**, and others.

Technology Description:

- Three-dimensional (3D) printing is a transformative manufacturing strategy, allowing rapid prototyping, customization, and **flexible manipulation** of structure-property relationships
- Biological exploitation can act as opportunity for the **regenerative medicine**.
- Photo-crossing mechanisms and rheological principles has been used for the **3D printing inks**.

#3Dprinting

#PlantbasedFoodInks

- Increased functionalities within robots help to perform tasks with **increased efficiency** and benefiting the companies to provide more **funds and investment** to optimize the processes like **food growing, harvesting, vending process** effortlessly.
- The high demand for plant-based ingredients and food products has urged companies to **develop systems** for plant-based ingredients and their manufacturing.

16 Feb 2021, Tuesday

Redefine Meat raises USD 29 Mn to fuel 3D printed alternative meat

Technology: 3D printed alternative proteins

Gallery: Redefine Meat

redefine meat

Founded: 2018

Headquarter: Israel

Key Takeaways

- The raised funding will help Redefine Meat to explore more alternative proteins for the development and also support their commercialization.
- The growing demand of the alternative protein company have developed a **3D alternative meat printer** and the support will help facilitates its early large-scale production.
- Redefine Meat has applied proprietary **3D printing technology**, meat **digital modeling**, and advanced **food formulations** to produce **animal-free meat** with the appearance, texture, and flavor of whole muscle meat.

Read this story

05 Feb 2021, Friday

Creating food inks from fresh and frozen vegetables

Technology: Plant-based food inks

NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

Key Features:

- Available in dehydrated food and freeze-dried powders
- Food inks from fresh and frozen vegetables
- Makes food more palatable
- Preserve the nutrition of the printed food

Key Takeaways

- **3D food printing technology** has advanced the creation of food with a desired shape and texture. **Food inks** are used for creational purposes.
- The new technology developed by the researcher has used dehydrated food and **freeze-dried powders**, and hydrocolloids additives to stabilize the ink for a smoother printing process.
- **Nanyang Technological University** has created the food inks used for **3D printing** from the **fresh and frozen vegetables**, which preserve nutrition and flavor through their existing method.

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