02

NO HUNGER

📖	2020-2024 Publications	**86**
	2020-2024 Percentage of all Taiwan Publications	**4.7%**
🏫	Course Units	**93**
🧑‍🏫	Student Engagement with Units on SDG 2	**1,536**

Research

A Low-Carbon Model for Smart Aquaculture

Professor Jun-Wei Hsieh's team at our Institute of Computational Intelligence integrated the AIoT with a proprietary vision model, SMILES-Net, to develop an intelligent counting and monitoring system for aquaculture. The solution addresses long-standing pain points in traditional farming, such as time-consuming manual counts, high error rates, and heavy labor costs, by enabling the real-time collection of environmental data and automated estimation of juvenile shrimp counts with approximately 93% accuracy. Using these data, the system optimizes feeding, water exchange, and stocking density management, reducing human error and labor burden while improving post-larvae survival and overall production efficiency. Beyond boosting farm-level performance, the platform advances automation, scalability, and decarbonization in aquaculture, and strengthens food supply resilience through data-driven operations. This study was published in the IEEE Internet of Things Journal.

Dietary Timing and Nutritional Risk in Young Adults

Associate Professor Hsin-Jen Chen of the Institute of Public Health investigated how meal timing and eating behaviors affect body composition and blood pressure in young adults. The study shows that easy-to-implement strategies, such as encouraging regular breakfast and reducing nighttime eating, can effectively improve nutrition-related metabolic risk indicators (e.g., blood pressure, total body fat, and trunk fat), providing an evidence base for campus and community nutrition programs. Compared with calorie restriction alone, aligning meal timing more effectively enhances diet quality and regularity, making it especially suitable for nutrition education interventions targeting youth and underserved populations. These findings were published in the journal, Chronobiology International.

Social Impact

Building an Age-Friendly Community
Through Texture-Modified Diets

Wei-Cheng Ge, a student in our Master's Program in Transdisciplinary Long-Term Care and Management, founded the team "Friendly Meals & Swallowing Care" (友膳食嚥家) to integrate long-term care, social work, nutrition, and medical expertise with a focus on improving older adults' food quality and safety. Anchored in the International Dysphagia Diet Standardisation Initiative (IDDSI) framework, the team designs and implements texture-modified meals in long-term care facilities, combining local ingredients with festive traditions to deliver menus that are palatable, safe, and resonant with memory. Beyond menu development, the team conducts workshops and hands-on training to build capacity among frontline caregivers and local communities, gradually establishing a self-sustaining, age-friendly food ecosystem. The project was recognized by the jury of the 2024 "Community as One" program, receiving the Exemplary Award in the Happy Community category.

Cross-Campus Deployment of a Smart Chinese Herbal Garden to Drive Sustainable Agricultural Transformation

Leveraging our university's advanced R&D capacity in smart agriculture, we converted cross-campus collaboration into a tangible social impact. In May 2024, the nation's first Smart Chinese Herbal Garden was inaugurated at the Beigang Branch of the China Medical University. The core technologies were provided by the biotechnology team led by Prof. Wen-Liang Chen, Chair of the Department of Biological Science and Technology, and the Internet of Things (IoT) team led by Distinguished Chair Professor Yi-Bing Lin of the Department of Computer Science, with technical support from Quanta Computer and Chunghwa Telecom. The garden adopts our smart-agriculture solution that integrates IoT field sensors and actuators, cloud data transmission, and AI analytics to enable remote, precision control of irrigation, fertilization, and environmental parameters. Through technology transfer and the co-creation of teaching sites, both institutions are jointly cultivating the next generation of talent in smart agriculture and traditional Chinese medicine, accelerating the modernization and internationalization of the Chinese herbal industry. By applying innovative technologies, the initiative strengthens the safety, accessibility, and sustainability of both food and medicinal crops.

Education & Cultivation

Reframing Food and Sustainability Through Art

To deepen public engagement with global food issues, our university uses cross-disciplinary art collaborations as a bridge. We invited France-based artist Joanna Wong, a founding member of the Enoki Collective, to curate on-campus exhibitions and interactive programs centered on the farm-to-table food system. Through horticultural and culinary practices, the project extends food beyond physiological nourishment to illuminate its role as cultural memory, social connection, and a medium of quiet resistance. Guided by a relational aesthetics framework, the exhibition unfolds along three themes— food and migration, food as nourishment, and food as social resistance— linking the fieldwork, kitchen, and gallery to spark public dialogue around food. Through the transformation of art and interactive learning, our school advances food issues from knowledge understanding to action participation, raising public attention to aspects such as nutritional accessibility, leftover food, and fair distribution, and using humanistic care to promote a more equitable, inclusive, and sustainable food future.

Special Lecture Series on Food Safety and Health Risk

On October 29, 2024, our university's Institute of Food Safety and Health Risk Assessment hosted a three-part lecture series to highlight forward-looking topics in food safety, functional microbes, and health risk assessment. The program opened with Dr. Hsiao-Wen Huang from SYNBIO TECH, who examined microbial safety controls across food-processing workflows and the development of functional microorganisms, emphasizing the pathways for translating academic research into industrial applications. The second lecture, "Food Safety and Health Risk Assessment in the Post-Pandemic Era," analyzed the global challenges that have emerged after COVID-19 and outlined the corresponding assessment frameworks and response strategies. The final session approached health risk assessment from a bioinformatics perspective, explaining how physiological biomarkers can be applied to evaluate risk, and illustrating the field's cross-disciplinary advances. Through this series of lectures, teachers and students can grasp the latest trends in food safety, and understand the role of microbial technology, epidemic challenges, and data analysis in food security.

Stewardship

Building a Sustainable, Healthy, and Equitable Campus Dining System

Our university is committed to a campus dining system that is safe, nutritious, affordable, and environmentally friendly, advancing dietary sustainability through two pillars: ensuring food equity and reducing food waste. To enhance accessibility and health, we collaborate with on-campus vendors to offer budget-friendly meal boxes that balance nutrition and price, and partner with campus convenience stores to provide discounted options. For students facing financial hardship, we distribute meal vouchers of NT$200 per person, creating an inclusive support system that ensures all students have access to sufficient, high-quality nutrition. Improvements have been made in waste reduction from the supply chain to the point of consumption. Vendors are encouraged to prepare food flexibly based on daily demand, convenience stores offer markdowns on items nearing their sell-by date to reduce leftovers, and outreach and coursework integrate the principles of taking appropriate portions and avoiding waste into everyday learning and living.