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AI and LLM in Industry/Aquaculture Applications

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Abstract: The integration of artificial intelligence (AI) and the internet of things (IoT), known as artificial intelligence of things (AIoT), is driving significant advancements in the industry/aquaculture, offering solutions to longstanding challenges related to operational efficiency, sustainability, and productivity. With the advent of powerful GPU, AI-related research or AI-based applications have sprouted in every corner of the world. Originating from pure network connectivity, the Internet of Things (IoT) has become a structure that can collect every piece of data from physical devices, daily activities, images, or videos into a data reservoir. As a result, tons of data are automatically generated into an enterprise database in a single day. This creates research opportunities on integrating AI, IoT, big data, and LLMs to improve the quality of industrial production, agriculture or net-cage aquaculture.

IoT sensors deployed across industry/aquaculture systems continuously track critical parameters such as temperature, humidity, and workers' behavior. AI algorithms process these data streams to provide predictive insights into working environment management, operations detection, etc. This talk will address the latest research studies in AIoT and LLMs within the industry/aquaculture, focusing on real-time environmental monitoring, data-driven decision-making, and automation. This talk will also highlight future directions for AIoT in industry/aquaculture, emphasizing the potential for hybrid AI models, improved scalability for large-scale operations, and sustainable resource management.



Biography: Yo-Ping Huang (Fellow, IEEE) received the Ph.D. degree in electrical engineering from Texas Tech University, Lubbock, TX, USA. He is a Chair Professor in the Department of Electrical Engineering, National Taipei University of Technology, Taipei, Taiwan, where he served as the Secretary General. He also serves as the President of Chinese Automatic Control Society. He was the President of National Penghu University of Science and Technology, Penghu, Taiwan. He was a Professor and the Dean of Research and Development, the Dean of the College of Electrical Engineering and Computer Science, and the Department Chair with Tatung University, Taipei. His current research interests include deep learning modeling, intelligent control, machine learning, and AIoT systems design.

Dr. Huang received the FUTEX (Future Tech) Award and the Outstanding Research Award from the National Science and Technology Council, Taiwan. He is Fellows of IET, CACS, TFSA, and AAIA. He was the IEEE SMCS VP for Conferences and Meetings, the IEEE SMCS BoG, the President of the Taiwan Association of Systems Science and Engineering, the Chair of the IEEE SMCS Taipei Chapter, the Chair of the IEEE CIS Taipei Chapter, and the CEO of the Joint Commission of Technological and Vocational College Admission Committee, Taiwan.

