CV	
	Shoji Takeuchi
Title:	■ **Prof.** **Dr.** **Mr.** **Mrs.** **Ms.**
Country:	JAPAN
Affiliation:	The University of Tokyo, and Kanagawa Institute of Industrial Science and Technology (KISTEC)
Major Field:	MEMS, Microfluidics, Tissue engineering
Brief Resume and Biography	Shoji Takeuchi received the B.E, M.E., and Dr. Eng. degrees in mechanical engineering from the University of Tokyo, Tokyo, Japan, in 1995, 1997, and 2000, respectively. He is currently a Professor in Department of Mechano-Informatics, Graduate School of Information Science and Technology, University of Tokyo. He has authored more than 230 peer-reviewed publications and filed over 140 patents. He has been recognized with numerous honors including Young Scientists' Prize, the Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology in 2008, the JSPS prize from the Japan Society for the Promotion of Science in 2010, ACS Analytical Chemistry Young Innovator Awards in 2015, and UNESCO Netexplo Award Winner 2019. JSME Micro-Nano Science & Technology Achievement Award in 2022. His current research interests include cultivated meat, 3D tissue fabrication, bioMEMS, implantable devices, artificial lipid bilayer systems, and biohybrid machines.

Abstract	
Title	**Biohybrid Innovations: Building the Future of Sensing Devices**
Abstract	As manufacturing technology advances, new devices and systems continue to emerge. However, replicating biological functions such as molecular recognition, substance production, and self-organization artificially remains a formidable challenge. This talk will explore biohybrid devices, which integrate the unique features of biological materials and mechanical components to overcome these hurdles. A focus will be on the development of biohybrid (BH) sensors capable of highly sensitive and specific molecule detection and unique tissue response identification. These sensors combine biomolecules with mechanical devices to form portable systems that can detect target molecules in both air and liquids with high selectivity. Furthermore, BH sensors can be tailored for specific applications: they can serve as chemical sensors to detect particular odors or chemicals, or as biosensors that measure biological responses to undefined targets or mixtures. Potential applications are vast and include robots that autonomously move towards human sweat at disaster sites, baggage screening systems at airports that detect traces of narcotics, and systems that assess the safety and functionality of new food ingredients. The realization of such technologies demands an interdisciplinary approach, merging fields such as engineering, biology, medicine, pharmacy, and science. This talk proposes that through biohybrid sensing, a new interdisciplinary academic domain could be established.