

The Department of Mechanical Engineering
College of Engineering and Applied Sciences
Stony Brook University

Mechanical Engineering Seminar



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Adaptive Morphology facilitates Embodied Intelligence

Tuesday, April 11th, at 1:30 PM, Room 173 Light Engineering Building

Abstract

My research philosophy is to clarify the underlying physics of some interesting phenomena in nature, engineer them under the light of advanced technologies, and apply them to create novel mechanisms to enable future robotic systems with safety, intelligence, and resilience, in order co-exist and be helpful around humans. Which also means our research address both scientific and technological aspects of robotics, as well as translational research. In this talk, I focus on our effort to create system with adaptive morphology and embodied intelligence, which can quickly adapt to continuous change of the surrounding environment without putting so much computation burden to central administration. This also means such system can offload some calculation from central administration to the body itself. I also introduce topics in soft robotics such soft underwater robot, soft flying and locomotive robots; morphological design for soft haptics interface, including haptics sensing and haptics display; safety measurements/safety control for drones, robot arm based on adaptive morphology and multimodal sensing.

Biography

Van Anh Ho (Senior Member, IEEE) received a Ph.D. degree in robotics from Ritsumeikan University, Kyoto, Japan, in 2012. Before that, he obtained the Bachelor degree in Electrical Engineering at Hanoi University of Science and Technology, Vietnam, in 2007; and Master degree in Mechanical Engineering in 2009 at Ritsumeikan University. He completed the JSPS Postdoctoral Fellowship in 2013 before joining Advanced Research Center Mitsubishi Electric Corp., Japan as a research scientist. From 2015 to 2017, he worked as Assistant Professor with Ryukoku University, Kyoto, Japan where he led a laboratory on soft haptics, soft modeling. From 2017, he joined the Japan Advanced Institute of Science and Technology (JAIST) for setting up a laboratory on soft robotics. His current research interests are soft robotics, soft haptic interaction, tactile sensing, grasping and manipulation, bio-inspired robots. He was a recipient of the prestigious Japan Society for the Promotion of Science (JSPS) Research Fellowship for Young Scientists for his PhD course and postdoctoral fellowship. Ho was the recipient of the 2019 IEEE Nagoya Chapter Young Researcher Award, Best Paper Finalists at IEEE SII (2016) and IEEE RoboSoft (2020). He is member of The Robotics Society of Japan (RSJ), and Senior Member of the IEEE. He is serving as Associate Editor for many international conferences, as well as for journals such as IEEE Transactions for Robotics (T-RO), IEEE Robotics and Automation Letters (RA-L), and Advanced Robotics. He is General Co-Chair of 2023 IEEE/SICE International Symposium on System Integration (SII 2023), and General Chair of SII 2024.

