



# THURSDAY, NOVEMBER 4 2-2:50PM CM266 ME Research Seminar

## Navigation in Ocean Flows

### ZHUOYUAN SONG, Ph.D.

*Assistant Professor*

*Department of Mechanical Engineering*

*University of Hawaii at Manoa*

**THURSDAY 11/4 2-2:50 PM**

**Zoom live stream:** [j.mp/F21researchseminar](https://j.mp/F21researchseminar)

**& live stream also shown in CM266**

followed by social at 3pm in CM 215

(The ME Zoo) with light refreshments

Info & past videos: [me.sdsmt.edu > seminars](https://me.sdsmt.edu/seminars)

### Speaker Bio:

Dr. Zhuoyuan Song is an Assistant Professor in the Department of Mechanical Engineering and a Cooperating Graduate Faculty in the Department of Ocean and Resources Engineering at the University of Hawaii at Manoa. He received the Ph.D. in Mechanical Engineering from the University of Florida in 2018. His research interests include navigation and control of autonomous robots, multi-robot coordination and localization, and the development of resident underwater robotic systems. His research has been funded by the NSF, DOE, DoD, and NASA.

### Talk Abstract:

Autonomous underwater vehicles, or AUVs, have been revolutionizing how we understand oceans. Nonetheless, harsh ocean environments render the navigation of AUVs extremely challenging, preventing the wide adoption of them. In this talk, I will present our recent work on AUV localization and path planning in ocean flows. I will discuss a flow-aided underwater localization method using probabilistic inference and stochastic filtering, and optimal path planning and analysis for AUVs in unsteady flow fields. I will also briefly cover the ongoing effort in establishing open-water resident AUV testbeds in Hawaii to accelerate the testing and verification of machine intelligence algorithms.