Department of Engineering
Seminar Program
Wednesday, January 25, 2017
Shanahan Teaching and Learning Center
Lecture Hall 1430, 4:15pm

"From Monterey Bay to Europa: Autonomous Marine Vehicles to explore the Earth's Oceans and search for life on other planets and moons"

Dr. Steve Chien

Summary:

Autonomous underwater vehicles offer great potential to explore the Earth's oceans as well as to explore other Ocean Worlds in our solar system including Europa, Enceladus, Triton, and even Pluto. In this talk I describe recent work in collaboration with Caltech,WHOI MBARI, and Remote Sensing Solutions, and the University of Washington to develop autonomy technology to enable marine vehicles to (a) incorporate a model of ocean currents and physical science features to more effectively travel and control their position (b) to autonomously investigate science features predicted by an ocean model or observed by ocean assets. I present work from recent deployments to Monterey Bay (2015, 2016) as well as proposed work to ocean worlds and preparatory Earth analogue work in the Arctic Ocean at the Karasik Massif.

Bio:

Dr. Steve Chien is a Senior Research Scientist at the Jet Propulsion Laboratory, California Institute of Technology where he leads efforts in autonomous systems for space exploration. Dr. Chien has received numerous awards for his research in space autonomous systems including: NASA Medals in 1997, 2000, 2007, and 2015; he is a four time honoree in the NASA Software of the Year competition; and in 2011 he was awarded the inaugural AIAA Intelligent Systems Award. He has led the deployment of ground and flight autonomy software to numerous missions including the Autonomous Sciencecraft/Earth Observing One, WATCH/Mars Exploration Rovers, Earth Observing Sensorwebs, IPEX, and ESA's Rosetta Orbiter. In 2015 he was awarded both the NASA Exceptional Achievement Medal and a JPL Magellan award for his contributions to the Rosetta mission.