Robotic Filtering and Planning in Communication, Sensor, and Model Challenged Environments

12:30-1:30pm
Friday, December 1, 2017

Dr. Leonardo Bobadilla

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Abstract:

Several important problems in mobile robotics, oceanic and environmental monitoring, and surveillance require filtering and planning for large groups of agents in scenarios where communication, sensing, and modeling are difficult. The key challenge is to model as little as possible about the physical world while still solving the required task such as localization, formation control, navigation, and patrolling. In this talk, I will describe recent ongoing research efforts by my group and collaborators on the following problems: 1) connecting a group of mobile units through autonomous vehicles in communication challenged scenarios; 2) localization in GPS denied environments; 3) proposing stochastic patrolling strategies under adversarial attacks; and 4) creating strategies for scheduling multiple robots under operator's constraints.

About the Speaker:

Dr. Leonardo Bobadilla is currently an Assistant Professor in the School of Computing and Information Sciences at Florida International University. In his research, he is interested in understanding the information requirements for solving fundamental robotics tasks such as navigation, patrolling, tracking, and motion safety. His research proposes techniques for tackling robotic tasks that depart from traditional approaches by avoiding system identification, geometric map building or excessive state estimation. He obtained the B.E. degree in Computer Engineering in 2005 and the M.Sc. degree in Statistics in 2008 both from the National University of Colombia. He then received his Ph.D. degree from the Department of Computer Science, University of Illinois at Urbana-Champaign (UIUC) working under professor Steven M. LaValle in 2013. He has received several awards including an Illinois Student Undergraduate Research (ISUR) Graduate Mentor Award 2012-2013 and the Top 10 Computer Engineering in Colombia (ECAES) Award.

Reception in Dunn Hall 336 - 1:30pm