Cornell University
School of Electrical and Computer Engineering

Information
Systems
Networks
Seminar

Jason Adaska
Numerica Corporation

"The Mathematics of Multiple Target Tracking"

Date: Noon, Wednesday September 15th.
Venue: Rhodes Hall, 380.

The problem of multiple target tracking involves computing dynamic estimates of targets that evolve through time using only data obtained through noisy sensor measurements. Problems of this type find application in a broad range of fields. These include classic applications such as air and missile defense, computer vision, and air traffic control, as well as less traditional areas such weather tracking, speech processing, and social network analysis. Each application domain offers its own unique challenges, but there are fundamental techniques that are common to all such problems.

Solutions to problems of this type involve an elegant mix of stochastic modeling, Bayesian estimation, and combinatorial optimization. In this talk, we provide a review of these fundamental techniques, focusing on the statistical filtering and multi-dimensional assignment problems that lie at the heart of modern approaches the multiple target tracking.

Pizza will be served 15 minutes prior to the start of the talk.

Short Bio:
Dr. Jason Adaska received his B.S. in Electrical Engineering and Computer Science from Cornell University in 2001. While at Cornell, he worked at the Bio-Acoustics division of the Cornell Lab of Ornithology designing multi-channel signal processing algorithms for detection of wildlife from acoustic sensors. He completed both his M.S. and Ph.D. in Applied Math at Harvard University in 2007, studying problems related to stochastic control theory. Since then, he has been working in industry on detection, estimation, and optimization problems related to multi-target tracking applications. He has worked as a researcher at BAE Systems (Advanced Information Technologies) and is currently a research scientist at the Numerica Corporation where he studies sensor resource management problems and leads efforts on Unmanned Aerial Vehicle (UAV) collision avoidance.