

The CoE Centre for Autonomous Marine Operations and Systems are proud to announce the visit of **Professor Andrew R. Teel, University of California at Santa Barbara** in fall 2013. As part of his stay he will give the following seminar:

An introduction to stochastic hybrid systems with an application to global almost sure synchronization of planar orientation

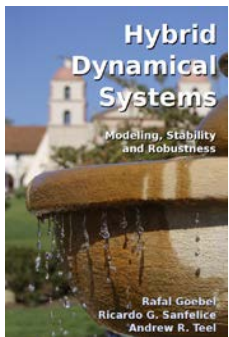
Time: Monday September 9th, 2013 at **13:45-14:45** (Note the time)

Place: Room B343, Gløshaugen, Elektrobygget (Department of Engineering Cybernetics)

Abstract

The variables of a hybrid dynamical system can change both continuously and discontinuously. The type of change that occurs is dictated by where the variables are in the state space. Many new results on the analysis and synthesis of hybrid control systems have been developed over the last decade. Our latest research focuses on extending these results to a class of stochastic hybrid systems. In particular, we analyze the situation where the value to which the state jumps is affected by a random variable. In this talk, we describe this class of systems, provide some basic analysis tools for them, and discuss one particular motivation for this class of systems. The motivation is the problem of global almost sure synchronization of planar orientation. For planar orientation, the literature contains solutions to the problem of (sure) almost global synchronization, but not to the problem of global, almost sure synchronization. In this talk, we emphasize the distinction between these two problems, provide a solution to the latter problem, and highlight the preferred robustness properties of this solution.

About the lecturer



Andrew R. Teel received his A.B. degree in Engineering Sciences from Dartmouth College in Hanover, New Hampshire, in 1987, and his M.S. and Ph.D. degrees in Electrical Engineering from the University of California, Berkeley, in 1989 and 1992, respectively. After receiving his Ph.D., he was a postdoctoral fellow at the Ecole des Mines de Paris in Fontainebleau, France. In 1992 he joined the faculty of the Electrical Engineering Department at the University of Minnesota, where he was an assistant professor until 1997. Subsequently, he joined the faculty of the Electrical and Computer Engineering Department at the University of California, Santa Barbara, where he is currently a professor. His research interests are in nonlinear and hybrid dynamical systems, with a focus on stability analysis and control design. He has received NSF Research Initiation and CAREER Awards, the 1998 IEEE Leon K. Kirchmayer Prize Paper Award, the 1998 George S. Axelby Outstanding Paper Award, and was the recipient of the first SIAM Control and Systems Theory Prize in 1998. He was the recipient of the 1999 Donald P. Eckman Award and the 2001 O. Hugo Schuck Best Paper Award, both given by the American Automatic Control Council, and also received the 2010 IEE Control Systems Magazine Outstanding Paper Award. He is an area editor for Automatica, and a Fellow of the IEEE and of IFAC.

He is visiting AMOS and NTNU to give the course “Hybrid Dynamical Systems” based on the book with the same title by R. Goebel, R. G. Sanfelice, and A. R. Teel, Princeton University Press, 2012.