

*Georgia Institute of Technology*

*The College of Computing*

Robotics and Intelligent Machines Seminar

## **Port-Based Robotics**

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The Netherlands

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Technology Square Research Building (TSRB), Room 113

11:00 a.m.

### **Abstract:**

Network theory is at the fundament of circuit analysis and design. This theory has been generalized to multi-domain modeling in different ways among which bond-graphs. Recently new modeling and analysis methods based on the concept of port-Hamiltonian systems have appeared and resulted in novel modeling and control strategies in different domains. In the field of robotics this novel approach has brought new approaches for modeling and control in different applications like locomotion, tele-manipulation and actuation design. In this talk an introduction of port-based concepts will be given and its power illustrated in a couple of examples.

### **Biographical Sketch:**

Stefano Stramigioli received the M.Sc. *with honors* (cum laude) in 1992 and the Ph.D *with honors* (cum laude) in 1998. Between the two degrees he worked as a researcher at the University of Twente, began his enterprise with which he generated two patents and received the Dutch Institute of System and Control certificate. Since 1998 he has been faculty member and he is currently full professor of the chair of Advanced Robotics. He is an officer and Senior Member of IEEE. He is the Director of the Strategic Research Orientation of the IMPACT institute of the University of Twente. He has about 100 publications including two books, book chapters, journal and conference contributions. He has supervised about 40 M.Sc. students, hosted many international post graduate students and post-docs and he is supervising currently 7 Ph.D. students. He has been in the organization of about 14 international events/conferences as publication or program (co)chair and is on the International Program Committee of approximately two conferences per year. He has been associate Editor of the IEEE Robotics and Automation Magazine, Editor in Chief of the IEEE ITSC Newsletter, he is a member of the Editorial Board of the Springer Journal of Intelligent Service Robotics and he is currently the Editor in Chief of the

Robotics and Automation Magazine and has been guest editor for others. He is an AdCom member for IEEE RAS. He has chaired the Technical Committee on Intelligent Transportation Systems for the IEEE Robotics and Automation Society. He is a member of the ESA Topical Team on Dynamics of Prehension in Micro-gravity and its application to Robotics and Prosthetics. He is involved in different projects related to Control, Robotics and MEMS and has been the coordinator of a 3.5 M Euros budget FP5 European Project named Geoplex. He has been invited many times as speaker at international schools, workshops and conferences for lectures or plenary speeches, and he has numerous national and international cooperative research projects. He teaches/ been teaching Modeling, Control and Robotics for under and post-graduates and has received teaching nominations and an award.

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