Jeffrey R. Peters **Curriculum vitae**

CONTACT INFORMATION

Center for Control, Dynamical Systems and Computation
Mechanical Engineering Department
University of California, Santa Barbara
2217 Engineering II,
Santa Barbara, CA 93106 USA

Office: +1-805-893-2801
Mobile: +1-805-680-5961
E-mail: jrpeters@engineering.ucsb.edu
Website: engineering.ucsb.edu/∼jrpeters/

RESEARCH INTERESTS

Human supervisory control, human-centered systems, robotic coordination and motion planning, autonomous systems and vehicles, distributed systems and control, estimation and non-linear optimization , distributed algorithms and computation, and applied mathematics.

EDUCATION

University of California, Santa Barbara, Santa Barbara, CA

Ph.D., Mechanical Engineering, 2011-

- Dissertation Topic: Cooperative Robotics and Mixed Teams
- Adviser: Professor Francesco Bullo
- Area of Study: Control Engineering

M.A., Applied Mathematics, December 2015

- Area of Study: Real and Complex Analysis, Numerical Analysis

M.S., Mechanical Engineering, December 2013

- Thesis Topic: Camera Coordination for Smart Intruder Detection
- Adviser: Professor Francesco Bullo
- Area of Study: Control Engineering

University of Illinois, Urbana-Champaign, IL

B.S., Mechanical Engineering, May 2011 GPA: 3.97 (4.0 scale)

- Bronze Tablet Honors
- Minor in Mathematics

PROFESSIONAL EXPERIENCE

University of California, Santa Barbara, Santa Barbara, CA

Graduate Student Researcher **Summer 2011-Present**

- Advisor Francesco Bullo

United Technologies Research Center, East Hartford, CT

Systems Department Consultant **Summer 2014, Summer 2015**

- Supervisors: Amit Surana, Luca Bertuccelli
- Designed supervisory control schemes
- Analyzed eye-tracking data

John Deere Construction and Forestry Division, Davenport, IA

Quality Engineering Intern **Summer 2010**

- Supervisors: Ellen Huntley, Amanda Freese
- Implemented new quality monitoring software

John Deere, Agriculture Division, Waterloo, IA

Manufacturing Engineering Intern **Summer 2009**

- Supervisor: Michael Walker
- Identified root causes of assembly issues
- Developed new automated oil system

REFEREED JOURNAL PUBLICATIONS

[1] J. R. Peters and L. Bertuccelli. Robust Task Scheduling for Multi-Operator Supervisory Control Missions. AIAA Journal of Aerospace Information Systems, 2015. Submitted.

[2] J. R. Peters, D. Borra, B. E. Paden, and F. Bullo. Sensor Network Localization on the Group of 3D Displacements. SIAM Journal on Control and Optimization, 2015. To Appear.

[3] J. R. Peters, V. Srivastava, G.S. Taylor, A. Surana, M.P. Eckstein, and F. Bullo. Human Supervisory Control of Robotic Teams: Integrating Cognitive Modeling with Engineering Design. IEEE Control Systems Magazine, 2015.

[4] F. Pasqualetti, F. Zanella, J.R. Peters, M. Spindler, R. Carili, and F. Bullo. Camera Network Coordination for Intruder Detection. IEEE Transactions on Control Systems Technology, 2013.

REFEREED CONFERENCE PUBLICATIONS

[1] J.R. Peters and L. Bertuccelli. Robust Scheduling Strategies for Collaborative Human-UAV Missions. American Control Conference, 2016. Submitted.

OTHER REFEREED PUBLICATIONS

[1] J.R. Peters and R. Patel. Thinking Robotics: Teaching Robots to Make Decisions. http://www.teachengineering.org/. 2015.

MISC. PUBLICATIONS

[1] J.R. Peters, L. Bertuccelli, and A. Surana. Eye-Tracking Metrics for Task-Based Supervisory Control. arXiv preprint, arXiv:1506.01976, 2015.

[2] J.R. Peters. Camera Coordination for Intruder Detection in 1D Environments. MS Thesis, Mechanical Engineering Department, University of California at Santa Barbara, December 2014.

REFEREE SERVICE

- IEEE Transactions on Human-Machine Systems
- IEEE Transactions on Control Systems Technology

STUDENT ADVISING

Heather Vermilyea
High school student at Dos Pueblos High School, Goleta, CA. Revisions and preparation for School for Scientific Thought class entitled “Thinking Robotics: Teaching Robots to Make Decisions” (see “Outreach”). June 2013-October 2013.

Ariana Del Toro
Undergraduate student in Mechanical Engineering, San Francisco University. RISE (Research Internships in Science and Engineering) Intern. Robotic Coverage Control: Theory and Implementation. June 2013-August 2013.

TEACHING EXPERIENCE

University of California, Santa Barbara, Santa Barbara, CA

Teaching Assistant

ME 104: Mechatronics. **Fall 2015, Fall 2011**

- Instructor: Brad Paden

ME 16: Dynamics. **Spring 2014**

- Instructor: Otger Campas

University of Illinois Urbana-Champaign, IL

Grader

TAM 210: Statics **Spring 2011**

- Instructor: Richard Keane

Engineering Learning Assistant

Eng 100: Intro to Engineering **Fall 2010**

- Responsible for two 1 hour lectures per week to freshman engineering students and acting as a mentor to them. Students learned about various resources that were available to them, as well as about professional skills such as resume writing, job interview tips, etc.

OUTREACH

School for Scientific Thought **Winter and Fall 2013**

- Taught a class to high school students entitled "Thinking Robotic: Teaching Robots to Make Decisions" in which students build a small robot and learn to program it to perform tasks such as simple navigation and object detection.
- Curriculum written for this class is published on www.teachengineering.org

UNDERGRADUATE RESEARCH

University of Illinois Urbana-Champaign, IL

Effect of Controllers on Bistability
in Atomic Force Microscopes **Fall 2010-Spring 2011**

- Advisor: Srinivasa Salapaka.

Absorption of Solar Cells Containing InAS/GaAs
Quantum Dots Based on Intermediate Band Placement **Spring 2010**

- Advisor: Harley Johnson.

PROFESSIONAL MEMBERSHIPS

Institute for Electrical and Electronics Engineers (IEEE), Member, 2011–present

- IEEE Control Systems Society (2011–present)

AWARDS AND DISTINCTIONS

University of California, Santa Barbara

- Center for Control, Dynamical Systems, and Computation Outstanding Scholar Fellowship, 2011

University of Illinois

- Engineer in Training (EIT), 2011
- Bronze Tablet Distinction for Graduation with Highest Honors, 2011
- Earl and Althea Smith Scholorship, 2010
- Pi Tau Sigma Initiate Award, 2008
- Dean's List, 7 Semesters from 2007-2011

OTHER SKILLS

Instrumentation, Control, Data Acquisition, Test, and Measurement:

- Simulink,
- LabVIEW

Computer Programming:

- Matlab, Python, C++

Numerical Analysis:
- MATLAB

EXPERTISE

Mathematics:
- Applied Mathematics, Linear Algebra, Real Analysis, Topology, Differential Geometry, Graph Theory.

Control Theory and Engineering:
- Human supervisory control, Robotic coordination, Linear and Nonlinear Systems Theory, Feedback, Distributed Algorithms.

Communications and Signal Processing:
- Probability, Random Variables, Estimation and Filtering

Computer Science and Engineering:
- Convex and Nonconvex Optimization, Optimization on Manifolds, Numerical Algorithms for ODEs and PDEs

Psychology and Human Factors:
- Human-centered systems, Accumulator models for perceptual decision making, Exogenous factors

REFERENCES AVAILABLE TO CONTACT

Available upon request.