

## CURRICULUM VITAE

# SANG JUNE OH

**ADDRESS:** 800 N. State College Blvd., Engineering Building E-100, Fullerton, CA 92831

**EMAIL:** sjoh@fullerton.edu, **TEL.:** 657-278-2458

### PROFILE SUMMARY:

Academic researcher • Control engineer • Cross disciplines in mechanical engineering, biomedical engineering (neuroscience), and electrical engineering • Teaching experience at university level (laboratory and lecture)  
• Programming experience in C/MATLAB and additional languages on PC/UNIX

### EDUCATION:

**Yale University**, New Haven, CT

- *Postdoctoral Associate* in Neurobiology, 2006 – 2008

**Johns Hopkins University**, Baltimore, MD

- *Postdoctoral Fellow* in Biomedical Engineering, 2005 – 2006

**Columbia University**, New York, NY

- *PhD* in Mechanical (Control) Engineering, received October, 2004
  - Thesis: Synthesis and Analysis of Design Methods for Improved Tracking Performance in Iterative Learning and Repetitive Control
  - Military leave, approximately 3 years
- *MPhil* in Mechanical Engineering, received February, 1996
  - Graduate research: Time optimal control implementation of *GE P-50* robotic manipulator

**Columbia University**, New York, NY

- *MS* in Mechanical Engineering, received May, 1993
  - Masters research: Electromechanical analysis and design of a tuned microphone and sonic emitter system for precise spatial position sensing

**Columbia University**, New York, NY

- *BS* in Mechanical Engineering, received May, 1991
  - Senior research: Design of automatic transmission system for bicycle with piezoelectric force feedback sensor
  - Honors research tutorial student, 1990-1991

## **EXPERIENCE:**

### **California State University Fullerton, Fullerton, CA**

- *Assistant Professor of Mechanical Engineering*, August 2009 to present
- *Lecturer of Mechanical Engineering*, August 2008 to August 2009
  - Lectured, developed curriculum, administered all grades for 11 mechanical engineering courses including *Dynamics and Control Laboratory, Mechanical Control Systems, Vibrations, Advanced Engineering Analysis, Advanced Dynamics and Control, and Advanced Vibrations, and Robotics*
  - Advised graduate and undergraduate students with research and academic program
  - Prepared and submitted externally funded grant proposals
  - Provided administrative support for Mechanical Engineering Department including documents for ABET accreditation
  - Served in various committees including College Curricular Committee, Academic Standards Committee, Faculty Search Committee, and Graduation Initiative Committee

### **Yale University, New Haven, CT**

- *Postdoctoral Associate in Neurobiology*, December 2006 to August 2008
  - Designed framework of experiments on nonhuman primates to explore how brain encodes and decodes information in discovering optimal sequences of movements in a dynamically changing environment
  - Performed electrophysiological brain recording experiment on nonhuman primates to analyze the neural processes responsible for optimal decision making

### **Johns Hopkins University, Baltimore, MD**

- *Postdoctoral Fellow in Biomedical Engineering*, March 2005 to September 2006
  - Applied *Kalman* filtering theory to explain the sensorimotor integration in human learning behavior of reaching tasks using 2D planar robotic manipulandum
  - Modeled repetitive visuomotor tracking tasks in human with modern control theory utilizing discrete time state space formulations

### **Columbia University, New York, NY**

- *Research Assistant*, January 2000 to October 2004
  - Explored design schemes to improve the tracking performance of iterative learning control and robust repetitive control algorithms for 7 DOF redundant robot and computer hard disk drive
  - Devised time optimal control implementation methods on *GE P-50* robotic manipulator model
- *Teaching Assistant*, 2003, 2001, and 1999
  - Created course curriculum in mechatronics and microcomputer control, supervised experiments involving PIC micro development system with embedded C programming, and led weekly pre-laboratory review sessions
  - Originated web-based control tutorial programs and led weekly review sessions in graduate level control level control theory course

- *Robotics Laboratory Project Manager, 1996*
  - Managed and guided undergraduate level robotics projects, while devising project schemes for precise position control of 5 DOF robotic manipulator
- *Calculus and Chemistry Instructor, Summers of 1992 to 1995*
  - Taught calculus/chemistry course to incoming freshmen for the summer program, created class curriculum, lectured, supervised laboratory experiments and administered all grades

#### **Defense Security Command, Seoul, Korea**

- *System Analyst and Secretary to Naval Captain, 1997 to 1999*
  - Evaluated advanced core technologies and subsystems needed for aircraft and maritime underwater systems
  - Translated, reviewed, and presented bi-weekly analysis report to lieutenant colonel on novel military systems
  - Coordinated schedule of the naval captain

#### **PUBLICATIONS:**

- S.J. Oh and J. Woscek, "Dynamic Analysis of Rzeppa and Cardan Joints in Monorail Drive Train System," pending, under review
- S.J. Oh and H. Luong, "Increasing Production Capacity of Heat Shrink Tubing Operation Through Device Reconfiguration," *International Journal of Engineering Science and Management*, Volume III, Issue I, 2013
- S.J. Oh and R. Unnikrishnan, "Infusing Assistive Technology in Undergraduate Engineering Education," *Interdisciplinary Engineering Design Education Conference*, Santa Clara, CA, March, 2011
- S. J. Oh, C.H. Donahue, S. Kim, D. Lee, "Coding of reward delay and effort in the primate supplementary and presupplementary motor areas during a sequence choice task," Society for Neuroscience Conference, Washington DC, November, 2008
- S. J. Oh and R. W. Longman, "Stability of Higher Order Repetitive Control," *Modeling, Simulation and Optimization of Complex Processes*, Springer Verlag, ISBN: 3-540-23027-0, 2005
- S. J. Oh, R. W. Longman, and Y.-P. Hsin, "The Possible Block Diagram Configurations for Repetitive Control to Cancel Periodic Plant and Measurement Disturbances," *Proceedings of AIAA/AAS Astrodynamics Specialist Conference*, Paper No. AIAA 2004-5297, Providence, RI, August, 2004
- S. J. Oh and R. W. Longman, "Analysis of Stability and Performance in Higher Order Repetitive Control," *Advances in the Astronautical Sciences*, Volume 116, pp. 1291-1310, 2004
- S. J. Oh and R.W. Longman, "Methods of Real-Time Zero-Phase Low-Pass Filtering for Robust Repetitive Control," *Proceedings of the AIAA/AAS Astrodynamics Specialist Conference*, Paper No. AIAA 2002-4916, Monterey, CA, August, 2002
- S. J. Oh, R. W. Longman, and M. Q. Phan, "Use of Decoupling Basis Functions in Learning Control for Local Learning and Improved Transients," *Advances in the Astronautical Sciences*, Volume 95, pp. 651-670, 1997

## **PRESENTATIONS, MEETINGS AND REVIEWS:**

- Reviewer, *Journal of Intelligent and Robotic System*, Springer, 2011, 2012
- Reviewer, *International Conference on Robotics and Automation*, 2011
- Reviewer, *Intelligent Service Robotics* (Journal), Springer, 2011
- Reviewer, *Symposium on Learning Control at IEEE CDC Conference*, Shanghai, China, 2009
- Grant proposal review panel member, National Science Foundation, Arlington, VA, 2009
- Reviewer, *Intelligent Service Robotics* (Journal), Springer, 2009
- Grant proposal review panel member, National Science Foundation, Arlington, VA, twice in 2009
- Speaker of departmental seminar, "Control of Learning Processes: From Electromechanical Systems to Biological Systems," *Villanova University*, Villanova, PA, April, 2008
- Speaker of departmental seminar, "The Effect of Uncertainties on Visuomotor Learning Task," *University of Rochester*, Rochester, NY, July, 2006
- Speaker of seminar, "Kalman Filtering approach in Analyzing Human Visuomotor Task," *State University of New York at Stony Brook*, Stony Brook, NY, May, 2006
- Speaker of departmental seminar, "Iterative Learning and Repetitive Control: Practical Implementation in Practice," *Columbia University*, New York, NY, February, 2005
- Speaker of seminar, "Learning Control in Electromechanical Systems," *Johns Hopkins University*, Baltimore, MD, December, 2004
- Reviewer, *IEEE Conference on Control Applications*, Taipei, Taiwan, 2004
- Speaker, "The Possible Block Diagram Configurations for Repetitive Control to Cancel Periodic Plant and Measurement Disturbances," *AIAA/AAS Astrodynamics Specialist Conference*, Providence, RI, August, 2004
- Speaker, "Analysis of Stability and Performance in Higher Order Repetitive Control," *AAS/AIAA Astrodynamics Specialist Conference*, Big Sky, MT, August, 2003
- Speaker, "Higher Order Repetitive Control," *Utah State University ILC Summer Workshop*, Big Sky, MT, June, 2003
- Speaker of seminar, "Decoupling Basis Functions in ILC," *Princeton University*, Princeton, NJ, August, 1996

## **RECENT HONORS:**

- *Faculty Recognition: Service*, from Faculty Development Center, Cal State Fullerton, received April 2012
- *Teacher Scholar Recognition for Exceptional Teaching Effectiveness*, from Faculty Development Center, Cal State Fullerton, received May, 2011
- *Outstanding Educator of the Year Award*, from Associated Students Incorporated (ASI), Cal State Fullerton, received May, 2009

## **SKILLS / INTEREST:**

- Proficient in computer programming including C/C++, MATLAB and additional languages on PC/UNIX operating systems; Extensive experience with LABVIEW and digital data acquisition; Fluent in English/Korean, and proficient in Japanese; Active in sports, including tennis (advanced, instructional experience) and golf (handicap of 20)