JORGE G. CHAM

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EDUCATION

Ph.D. in Mechanical Engineering, Stanford University, January 2003

M.S. in Mechanical Engineering, Stanford University, June 1999

B.S. in Mechanical Engineering, Georgia Institute of Technology, June 1997

POSITIONS HELD

Artist/Publisher, Piled Higher & Deeper Publishing, LLC, July 2005-present.

Instructor/Researcher, Department of Mechanical Engineering, California Institute of Technology, Jan. 2003-July 2005.

Graduate Research Assistant, Biomimetic Robotics Laboratory, Department of Mechanical Engineering, Stanford University, 1997-2003. Advisor: Prof. Mark R. Cutkosky

Engineering Intern, Immersion Corporation, San Jose, California, June-September 1997.

Research Intern, United Technologies Research Center, Hartford, Connecticut, June-September 1996.

PUBLICATIONS

Journal Articles

Cham, J. G., Bailey, S. A., Clark, J. E., Full, R. J. and Cutkosky, M. R., "Fast and Robust: Hexapedal Robots via Shape Deposition Manufacturing," International Journal of Robotics Research, vol. 21, issue 10, October 2002.

Cham, J. G., Karpick, J. and Cutkosky, M. R., "Stride Period Adaptation for a Biomimetic Running Hexapod," International Journal of Robotics Research, vol. 23, issue 2, February 2004.

Cham, J. G., Branchaud, E. A., Nenadic, Z., Greger, B., Andersen, R. A. and Burdick, J. W., “A Semi-Chronic Motorized Microdrive and Control Algorithm for Autonomously Isolating and Maintaining Optimal Extracellular Action Potentials,” Journal of Neurophysiology, Jan 2005; 93: 570 - 579.

Andersen, R. A., Burdick, J. W., Scherberger, H., Musallam, S., Pesaran, B. and **Cham, J. G.**, “Cognitive Neural Prosthetics,” Trends in Cognitive Science, Vol 8, Issue 11, November 2004, Pages 486-493

Yang, M. C. and **Cham, J. G.**, "An Analysis of Sketching Skill and its Role in Early Stage Engineering Design," J. of Mechanical Design, May 2007, Vol. 129, Issue 5, pp. 476-482

Cham, J. G. and Cutkosky, M. R., "Dynamic Stability of Open-loop Hopping," J. of Dynamic Sys., Measurement and Control, May 2007 Vol. 129, Issue 3, pp. 275-284.

Conference Proceedings

Cham, J. G., Pruitt, B. L., Cutkosky, M. R., Binnard, M., Weiss, L. E., Neplotnik, G., "Layered Manufacturing with Embedded Components: Process Planning Issues," ASME Intl. Design Eng. Tech. Conferences '99, Las Vegas, Nevada, September 12-15, 1999.

Bailey, S. A., **Cham J. G.**, Cutkosky, M. R., Full, R. J., "Biomimetic Robotic Mechanisms via Shape Deposition Manufacturing," Robotics Research: the Ninth International Symposium, John Hollerbach and Dan Koditschek (Eds), Springer-Verlag, London, 2000.

Cham, J. G., Baileys, S. A., Cutkosky, M. R., "Robust Dynamic Locomotion Through Feedforward-Preflex Interaction," ASME International Mechanical Engineering Congress and Expo, Orlando, FL, Nov. 5-10, 2000.

Bailey, S. A., **Cham, J. G.**, Cutkosky, M. R., Full, R. J., "Comparing the Locomotion Dynamics of a Cockroach and a Shape Deposition Manufactured Biomimetic Hexapod," International Symposium on Experimental Robotics (ISER2000), Honolulu, HI, December 10-13, 2000.

Clark, J. E., **Cham, J. G.**, Bailey, S. A., Froehlich, E. M., Nahata, P. K., Full, R. J. and Cutkosky, M. R., "Biomimetic Design and Fabrication of a Hexapedal Running Robot," International Conference on Robotics and Automation (ICRA2001), Seoul, Korea, May 21-26 2001.

Cham, J. G., Stafford, B. and Cutkosky, M. R., "See Labs Run: A Design-oriented Laboratory for Teaching Dynamic Systems," ASME International Mechanical Engineering Congress and Expo 2001, New York, NY, Nov. 11-16, 2001

Cham, J. G., Karpick, J., Clark, J. E. and Cutkosky, M. R., "Stride Period Adaptation for a Biomimetic Running Hexapod," Tenth International Symposium of Robotics Research, Lorne, Victoria, Australia, November 9-12, 2001

Cham, J. G. and Cutkosky, M. R., "Adapting Work Through Actuator Phasing in Running," International Symposium on Adaptive Motion of Animals and Machines, Kyoto, Japan, March 4-8, 2003.

Branchaud, E.A., Nenadic, Z., Meeker, D., **Cham, J. G.**, Andersen, R. A. and Burdick, J. W., "Movable Electrodes for Autonomous Cell Isolation and Tracking: Algorithm, Experiments and Hardware," Program No. 607.16. 2003 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2003.

Andersen, R. A., Burdick, J. W., Musallam, S., Scherberger, H., Pesaran, B., Meeker, D., Corneil, B. D., Fineman, I., Nenadic, Z., Branchaud, E., **Cham, J. G.**, Greger, B., Tai, Y. C. and Mojarradi, M. M., “Recording Advances for Neural Prosthetics” Intl. Conference IEEE Engineering in Medicine and Biology Society, San Francisco, CA, Sept. 2004.

McClung, A. J., **Cham, J. G.**, Cutkosky, M. R., “Rapid Maneuvering of a Biologically Inspired Hexapedal Robot,” Symp. on Adv. in Robot Dynamics and Control (ARDC 2004), ASME IMECE, Anaheim, CA USA, November 2004.

Branchaud, E. A., **Cham, J. G.**, Nenadic, Z., Andersen, R. A. and Burdick, J. W., "A miniature robot that autonomously optimizes and maintains extracellular neural action potential recordings," Proceedings of Intl. Conference on Robotics and Automation 2005.

Andersen, R. A., Musallam, S., Burdick, J. W., and **Cham, J. G.**, "Cognitive Signals for Neural Prosthetics," Proceedings of Intl. Conference on Robotics and Automation 2005.

Cham, J. G., and Yang, M. C., “Does good sketching skill relate to good design?" Submitted to 2005 ASME Design Engineering Technical Conferences.

Cai, L, Fong, A., Otoshi, C., Liang, Y. Q., **Cham, J. G.**, Zhong, V., Roy, R., Edgerton, R. and Burdick, J. W., "Effects of consistency vs. variability in robotically controlled training of stepping in adult spinal mice," Submitted to the 2005 Intl. Conference on Rehabilitation Robotics.

Pang, C., **Cham, J. G.**, Nenadic, Z., Tai, Y. C., Burdick, J. W., and Andersen, R. A., "A new neural recording electrode array with parylene insulating layer," 9th Intl. Conf. on Miniaturized Systems for Chemistry and Life Sciences 2005

Pang, C., **Cham, J. G.**, Nenadic, Z., Musallam, S., Tai, Y. C., Burdick, J. W., and Andersen, R. A., "A New Multi-Site Probe Array with Monolithically Integrated Parylene Flexible Cable for a Neural Prosthesis," 27th Intl. Conf. of IEEE Engineering in Medicine and Biology Society, 2005.

Cham, J. G., Wolf, M. T., Andersen, R. A. and Burdick, J. W., "Miniature Neural Interface Microdrive using Parylene-coated Layered Manufacturing," 2006 IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics

TEACHING EXPERIENCE

Instructor*,* Department of Mechanical Engineering, California Institute of Technology, January 2003-July 2006.

- **ME70**, Intro to Kinematics (Instructor), Winter 2003
- **ME71**, Introduction to Design (Co-instructor), Spring 2003 and Spring 2004
- **ME170**, Visualization techniques for Mechanical Design, Spring 2003 (Co-instructor) and Spring 2004, 2005 and 2006 (Instructor).

Graduate Teaching Fellow, Department of Mechanical Engineering, Stanford University, ME161: Dynamic Systems, Autumn 2000. Student Teaching Evaluations Instructor rating in 96 percentile of School of Engineering.

Teaching Assistant*:* ME 161, Dynamic Systems, Stanford University, Autumn 1997.

Teaching Assistant*:* Georgia Institute of Technology, Automatic Control (Spring 1996), System Dynamics (Winter 1996).

Coach*:* ME118: Smart Product Design, Stanford University, Winter 1999.

Co-Instructor*:* ME393: Biomimetic Robotics Seminar, Winter 2001. Selected and organized weekly discussions on biomechanics and robotics literature

Science and Engineering Education Scholars Program Participant, University of Minnesota, July 29 - August 3, 2001.

INVITED TALKS

Disney Imagineering, Production R & D, Tujunga, California, July 2000.

Office of Naval Research Biorobotics Workshop, Arlington, Virginia, July 2001.

Honda Research & Development Americas, Mountain View, California, Sept. 2001.

Movement Research Seminar, Stanford University, November 2001.

Motor- and Locomotion Control Seminar, U. of Southern California, March 2002.

Massachusetts Institute of Technology Mech. Engineering Seminar, April 2002.

California Institute of Technology Mech. Engineering Seminar, May 2004.

EMBS Biomedical Robotics and Biomechatronics Workshop San Francisco, California, September 2004.

AWARDS

Office of Minority Educational Development (OMED) awards for academic achievement: 1994, 1995, 1996 and 1997, Georgia Institute of Technology.

Chair's Award, George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, June 1997

REFERENCES

Mark R. Cutkosky, Stanford University, cutkosky@cdr.stanford.edu
Joel W. Burdick, California Institute of Technology, jwb@robotics.caltech.edu
Bernard Roth, Stanford University, broth@stanford.edu
Richard A. Andersen, California Institute of Technology, andersen@vis.caltech.edu
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PERSONAL DATA

U.S. Permanent Resident.
Country of origin: Republic of Panama.
Date of Birth: May 1976.