Adam E. Leeper

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EDUCATION

Ph.D. Mechanical Engineering (Robotics), Stanford University 2013
Advisor: Professor Kenneth Salisbury
Thesis: Robot Telemanipulation in Unstructured Environments: Sensors, Algorithms, Interfaces.

M.S. Mechanical Engineering, Stanford University, 3.97 GPA 2009
B.S. Engineering Physics, The University of Tulsa, 3.99 GPA 2007

EXPERIENCE

Senior Systems Engineer - hiDOF, Inc., South San Francisco, CA 2013
Technology transfer, exploration, and software development for robotics applications.

Research Intern - Willow Garage, Inc., Menlo Park, CA 2010 - 2013
Created systems, controllers, and user interfaces for teleoperated mobile manipulation.

Research Assistant - Salisbury Robotics Lab, Stanford, CA 2008 - 2013
Conducted research in algorithms for haptic rendering and robot control.
Implemented miniature stereo camera sensor hardware for a robot gripper.

Electrical Engineering Intern - Qual-Tron, Inc., Tulsa, OK 2006 - 2007
Designed and implemented test procedures for IR and magnetic sensor products.
Led redesign of a magnetic sensor product to reduce cost and simplify assembly.

Consulting:

Motion Genesis, LLC - Developed visualization tools for multi-body systems. 2011-2013
Applied Materials, Inc. - Subcontracting consultant for robot motion visualization. 2012
Charm Labs - Dynamics and control. Confidential. 2012

TEACHING

Instructor: ME101 Dynamics, San Jose State University, 35 students. Fall 2013
Instructor: ME101 Dynamics, San Jose State University, 49 students. Fall 2012
Student-rated 4.8/5.0 for overall teaching quality.
Instructor: ME101 Dynamics, San Jose State University, 56 students. Fall 2011
Student-rated 4.6/5.0 for overall teaching quality.

Instructor: Programming and Robotics, EPGY Summer Institutes at Stanford. Summer 2010

Course Assistant: ME331b - Dynamics and Simulation with Paul Mitiguy, Stanford. Spring 2012
Course Assistant: CS277 - Haptics with Ken Salisbury, Stanford. Winter 2011
Course Assistant: CS223a - Robotics with Oussama Khatib, Stanford. Winter 2010
Course Assistant: ENGR15 - Dynamics with Paul Mitiguy, Stanford. Fall 2009

PUBLICATIONS

A. Leeper, K. Hsiao, M. Ciocarlie, I. Sucan, K. Salisbury. Assisted Arm Teleoperation in Clutter Using Constraints from 3D Sensor Data. In 2nd Workshop on Robots in Clutter: Preparing robots for the real world (in conjunction with RSS). June 2013, Berlin, Germany.

Chen, Tiffany., Ciocarlie, Matei., Cousins, Steve., Grice, Phillip M.., Hawkins, Kelsey., Hsiao, Kaijen., Kemp, Charlie., King, ChihHung., Lazewatsky, Daniel., **Leeper, Adam Eric.**, Nguyen, Hai., Paepcke, Andreas., Pantofaru, Caroline., Smart, William., and Takayama, Leila. Robots for humanity: using assistive robotics to empower people with disabilities. IEEE Robotics and Automation Magazine special issue on Assistive Robotics. Volume 20, Issue 1, 2013.

A. Pratkanis, **A. Leeper**, K. Salisbury. Replacing the Office Intern: An Autonomous Coffee Run with a Mobile Manipulator. ICRA, May 2013, Karlsruhe, Germany.

M. Ciocarlie, K. Hsiao, **A. Leeper**, D. Gossow. Mobile Manipulation Through an Assistive Home Robot. IROS, October 2012, Algarve, Portugal.

A. Leeper, S. Chan, and K. Salisbury. Point Clouds Can Be Represented as Implicit Surfaces for Constraint-Based Haptic Rendering. ICRA, May 2012, St. Paul, MN.

A. Leeper, S. Chan, K. Hsiao, M. Ciocarlie, K. Salisbury. Constraint-based Haptic Rendering for Teleoperated Robot Grasping. IEEE Haptics Symposium, March 2012, Vancouver, Canada.

A. Leeper, K. Hsiao, M. Ciocarlie, L. Takayama, D. Gossow. Strategies for Human-in-the-Loop Robotic Grasping. HRI, March 2012, Boston, MA.

R. Brewer, **A. Leeper**, K. Salisbury. A Friction Differential and Cable Transmission Design for a 3-DOF Haptic Device with Spherical Kinematics. IROS, Sept. 2011, San Francisco, CA.

D. Gossow, **A. Leeper**, D. Hershberger, M. Ciocarlie. Interactive Markers: 3-D User Interfaces for ROS Applications [ROS Topics]. IEEE Robotics and Automation Magazine, December 2011.

A. Leeper, S. Chan, and K. Salisbury. Constraint-based 3-DOF Haptic Rendering of Arbitrary Point Cloud Data. RSS Workshop on RGB-D Cameras, June 2011, Los Angeles, CA.

A. Leeper, K. Hsiao, E. Chu, and K. Salisbury. Using Near-Field Stereo Vision for Robotic Grasping in Cluttered Environments. ISER, Dec. 2010, Delhi, India.

Caruso, John F; Hari, P; **Leeper, Adam E**; Coday, Michael A; Monda, Julie K; Ramey, Elizabeth S; Hastings, Lori P; Golden, Mallory R; Davison, Steve W. Impact of Acceleration on Blood Lactate Values Derived From High-Speed Resistance Exercise. Journal of Strength & Conditioning Research. 23(7):2009-2014, October 2009.

Caruso J.F., Hari P., Coday M.A., **Leeper A.**, Ramey E.S., Monda J.K., Hastings L.P., and Davison S. (2008). Performance evaluation of a high-speed inertial exercise trainer. The Journal of Strength & Conditioning Research. 22(6): 1760-1768.

A. Leeper, M. Coday, P. Hari, J. Caruso. Instrumentation of a High-Speed Inertial Exercise Device Using Load Cell Transducers. Proceedings of 53rd IIS, April 2007, Tulsa, OK.

SKILLS

Strong expertise in robotics, dynamics, controls, and applied mathematics.

Computation: Comfortable in Linux and Windows environments. Software engineering (C++, Python) for robotics and simulation, with extensive use of version control and issue tracking. Proficiency in MATLAB for computation and data analysis. Experience with ROS, Qt, PCL, OpenGL, OpenCV.

Electronics: Circuit design/debugging, prototype PCB layout/fabrication, embedded systems.

Hardware: General machine shop rapid-prototyping skills, and proficient in CAD tools (Solidworks).

Languages: English (native), Spanish (fluent), French (proficient reading and writing).

Other: Private pilot, recording engineer, bassist.

AWARDS

2007-2012 National Science Foundation Graduate Research Fellowship
2007 Stanford Graduate Fellowship
2007 John McCamey Award presented by ISA
Member, Tau Beta Pi Engineering Honor Society
Member, Sigma Pi Sigma Physics Honor Society
Member, Phi Kappa Phi Honor Society
Member, Mortar Board National College Senior Honor Society

REFERENCES

Kenneth Salisbury, Prof. Computer Science, 650.465.5700, jks@robotics.stanford.edu
Paul Mitiguy, Prof. Mechanical Engineering, 650.346.9595, mitiguy@stanford.edu
Kaijen Hsiao, Research Scientist, Willow Garage, Inc., 617.304.1759, hsiao@willowgarage.com