Adam Eric Leeper

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EXPERIENCE

Software Engineer - Google, Inc. Mountain View, CA **Sept. '14 - present**

- Project Tango: Develop algorithms and applications for Visual- Inertial SLAM and sparse mapping.

Senior Systems Engineer - hiDOF, Inc., South San Francisco, CA **July '13 - Sept. '14**

- Key software developer for major client. C++ system design, algorithm development, and build-system support.
- Projects in wheeled vehicle motion planning, visual inertial navigation, and visual monocular SLAM.

Research Intern - Willow Garage, Inc., Menlo Park, CA **Sept. '10 - June '13**

- Developed novel optimization-based controller and user interfaces for assisted collision-free teleoperation.
- Conducted user experiments and authored papers published in major robotics conferences. robot teleoperation.

Graduate Researcher - Salisbury Robotics Lab, Stanford, CA **Aug. '08 - June '13**

- Developed new algorithms for haptic rendering and robot control (in collaboration with Willow Garage).
- Implemented miniature stereo camera sensor for a robot gripper (PCB design, mechanical hardware prototyping).

Consulting:

Motion Genesis, LLC - Developed web-based visualization software for multi-body systems. **Spring '11 - Fall '13**
Applied Materials, Inc. - Subcontracting consultant for robot motion visualization. **Fall '12**

SKILLS

Applied Math - Expert in dynamics, kinematics, and 3D geometry as applied to robotics, simulation, and graphics.
Software Languages - C++ (6 years) in large, complex projects featuring multi-threaded, event-driven, and multi-process designs, with a focus on quality and maintainability. Proficient in Python, Javascript, and MATLAB.
Software Tools - Expert knowledge of ROS. Experience with Eigen, OpenMP, MoveIt!, PCL, OpenCV, OpenGL, Qt. Development in Ubuntu Linux (expert) and Windows (proficient) using version control (git, svn) and issue tracking.
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).
Other - Private pilot, recording engineer, bassist.

EDUCATION

Ph.D. Mechanical Engineering under Professor Ken Salisbury, Stanford University, 3.94 GPA **June '13**
Thesis: Robot Telemanipulation in Unstructured Environments: Sensors, Algorithms, Interfaces.

M.S. Mechanical Engineering, Stanford University, 3.97 GPA **March '09**
B.S. Engineering Physics, The University of Tulsa, 3.99 GPA **May '07**

TEACHING

Instructor: ENGR 105 Controls, Stanford University, 72 students. **2015**
Instructor: ENGR 14 Statics, Stanford University, 77 students. **2014**
Instructor: ME 101 Dynamics, San Jose State University, 50 students. **2011, 2012, 2013**
Instructor: Programming and Robotics, EPGY Summer Institutes at Stanford. **2010**

SELECTED PUBLICATIONS

A. Leeper, K. Hsiao, M. Ciocarlie, I. Sucan, and K. Salisbury. Methods for Collision-Free Arm Teleoperation in Clutter Using Constraints from 3D Sensor Data. 2013 International Conference on Humanoid Robots. October, 2013. Atlanta, Georgia.

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