JENNIFER E. KING

600 9th St.
Oakmont, PA 15139
513.305.9836
jeking@andrew.cmu.edu
http://jenkingrobotics.com

EDUCATION

Carnegie Mellon University Pittsburgh, PA
Ph.D. in **Robotics** Graduation: **Expected Sep. 2016**
Thesis: "Robust Rearrangement Planning using Nonprehensile Interaction"
Advisor: Siddhartha S. Srinivasa

University of Pennsylvania Philadelphia, PA
Masters of Science in **Robotics** Graduation: **May 2009**
Cumulative GPA: **3.96/4.0**
Thesis: "A Particle Filter Approach to Simultaneous Localization and Mapping using Range-Only Data"

Carnegie Mellon University Pittsburgh, PA
Bachelors of Science in **Computer Science** Graduation: **May 2004**
Cumulative GPA: **3.72/4.0**

EXPERIENCE

Carnegie Mellon Personal Robotics Laboratory Pittsburgh, PA 2012–present
Research Associate / Ph.D. Student
- Integrated physics simulators such as Box2d and ODE into OMPL randomized planners to generate trajectories for a robot pushing objects
- Developed and demonstrated robot manipulation tasks such as block sorting and table clearing on the HERB bimanual manipulator
- Maintained navigation and planning software for a Segway base on the HERB robot

NASA Ames Research Center Moffett Field, CA 2013–present
Space Technology Research Fellow
- Integrated object push planner onto KRex rover to allow interaction with environment

Lockheed Martin Advanced Technology Laboratories Cherry Hill, NJ 2008–2012
Research Scientist
- Led navigation planning and mission management software development for an autonomous underwater vehicle performing survey and change detection on underwater structures
- Designed a detection and assessment system for an AUV to automate contingency monitoring
- Implemented on-board state estimation for a maple-seed inspired autonomous air vehicle
- Developed a particle filter for tracking estimates of multi-robot configurations based on radio frequency signal strength between robots

University of Pennsylvania Philadelphia, PA 2008–2009
Research Associate/Graduate Student
- Developed an algorithm to efficiently evaluate action cost during navigation planning

Northrop Grumman Mission Systems Columbia, MD 2004–2008
Software Engineer
- Installed, configured and administered multiple instances of an Oracle database

SKILLS

Programming Languages: C++, C, Python, Matlab, Java
Software: ROS, OpenRAVE, OMPL, DART: Dynamic Animation and Robotics Toolkit
Version control: git (github/bitbucket username: jeking04), SVN, Mercurial

PUBLICATIONS

- Johnson, A., **King, J.** and Srinivasa, S. "Convergent planning." *IEEE Robotics and Automation Letters (RA-L)*, 2016.
- **King, J**, Cognetti, M., and Srinivasa, S. "Rearrangement Planning using Object-centric and Robot-centric Action Spaces." *IEEE International Conference on Robotics and Automation (ICRA)*, 2016.
- Koval, M., **King, J.**, Pollard, N. and Srinivasa, S. "Robust Trajectory Selection for Rearrangement Planning as a Multi-Armed Bandit Problem." *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2015.
- Haustein, J., **King, J.**, Srinivasa, S., and Asfour, T. "Kinodynamic Randomized Rearrangement Planning via Dynamic Transitions Between Statically Stable States." *IEEE International Conference on Robotics and Automation (ICRA)*, 2015.
- **King, J.**, Haustein, J., Srinivasa, S., and Asfour, T. "Nonprehensile Whole Arm Rearrangement Planning on Physics Manifolds." *IEEE International Conference on Robotics and Automation (ICRA)*, 2015.
- **King, J.**, Klingensmith, M., Dellin, C., Dogar, M., Velagapudi, P., Pollard, N. and Srinivasa, S. "Pregrasp Manipulation as Trajectory Optimization." *Robotics: Science and Systems (RSS)*, 2013.
- Fregene, K., Sharp, D., Bolden, C., **King, J.**, Stoneking, C. and Jameson, S. "Autonomous Guidance & Control of a Biomimetic Single-Wing MAV." *AUVSI Unmanned Systems North America*, 2011.
- **King, J.** and Likhachev, M."Efficient Cost Computation in Cost Map Planning for Non-Circular Robots." *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2009.

TEACHING

University of Pennsylvania Teaching Assistant - *Robotics: Planning and Perception*
Carnegie Mellon University Teaching Assistant - *Robot Autonomy*

MENTORED STUDENTS

Joshua Haustein Visiting MS student - Karlsruhe Institute of Technology, Germany
Project: Expanding physics-based rearrangement planning to dynamic interactions
Marco Cognetti Visiting Ph.D. student - Sapienza University, Rome
Project: Anytime rearrangement planning using anytime-shortcutting RRT
Carolina Loureiro Visiting MS student - KTH Royal Institute of Technology, Sweden
Project: Alternative methods for shortcutting rearrangement plans
Vinitha Ranganeni Undergraduate student - Carnegie Mellon University
Improving rearrangement planning strategies from user demonstrations
Mehar Singh Undergraduate student - Carnegie Mellon University
Project: Heuristics for multi-object goals in rearrangement planning

ACTIVITIES AND AWARDS

NASA Space Technology Research Fellowship 2012-2017
Carnegie Mellon University Presidential Scholarship 2000-2004
NCAA Division III Women's Varsity Volleyball 2000-2004
Black Bear Half Ironman Triathlon 2013
Tough Mudder 2012 2013