

CURRICULUM VITAE

Dov Katz

5476 Pocusset St.
Pittsburgh, PA 15217
USA

Phone: (412) 689-6664
E-Mail: dkatz@nrec.ri.cmu.edu
URL: <http://www.dubikatz.com>

Education

- Ph.D. **Computer Science**, University of Massachusetts Amherst, September 2011
Advisor: Prof. Oliver Brock
Thesis Committee: Prof. Andrew Barto, Prof. Erik G. Learned-Miller, Prof. Andrew Cohen
- M.Sc. **Computer Science**, University of Massachusetts Amherst, May 2008
Advisors: Prof. Oliver Brock, Prof. Erik G. Learned-Miller
- B.Sc. **Computer Science and Electrical Engineering**, Tel-Aviv University, May 2004

Professional and Research Experience

- **Postdoctoral Fellow**, Carnegie Mellon University 8/2011-Present
Conducting research in autonomous mobile manipulation with focus on perception in unstructured environments. Developing state-of-the-art perception algorithms for detecting, tracking and modeling novel objects (natural and man-made). Integrating machine-learning methods to enable life-long learning of robotic perception and manipulation skills. Collaborating with Prof. Srinivasa (Personal Robotics Lab), Prof. Bagnell (Learning, Artificial Intelligence, and Robotics Lab), and Prof. Stentz (National Robotics Engineering Center).
- **Research Assistant**, Technical University of Berlin 2009-2011
Designed and supervised the implementation of a new robotic platform. Led a team of PhD students in the design of a new software library. Involved in hiring decisions.
- **Research Assistant**, University of Massachusetts Amherst 2005-2009
Conducted various research projects on autonomous mobile manipulation in the robotics research lab.
- **Research Assistant**, Tel-Aviv University 2003-2004
Led a research project on matching emotional states with facial expression using computer vision, in the research group of Prof. Messer-Yaron.
- **Software Engineer**, Zend Technologies 2000-2005
Directed the design and implementation of software packaging on multiple operating systems for the leading web scripting language PHP.

Teaching Experience

- **Interactive Perception seminar**, Carnegie Mellon University 2012–Present
 Founded the Carnegie Mellon University seminar on interactive perception. Currently organizing the seminar, inviting speakers, presenting relevant research, initiating discussion, and encouraging collaboration.
- **Research supervisor**, Technical University of Berlin 2009–2011
 Supervised B.Sc. and M.Sc. theses. Selected research topics and guided the students throughout their research and writing.
- **Research Experience for Undergraduates Supervisor**, University of Massachusetts Amherst 2006–2009
 Led the research of a team of undergraduates and instructed them in various computer science topics related to the research.
- **Teaching Assistant**, University of Massachusetts Amherst 2005–2006
 Held office hours, prepared and graded homework and exams.
- **Tutor**, Perach (Israel's tutoring project) 2000–2002
 Tutored and mentored middle school children from underprivileged families.

Honors and Awards

- IEEE Robotics and Automation Society **Most Active Technical Committee Award** 2010–2011
- **Outstanding Masters Project** (funded by Yahoo!) 2008
- **Passed PhD qualifying portfolio with distinction** 2008
 (awarded to 1–2 candidates per year)
- **Best Manipulation Paper finalist** 2008
 IEEE International Conference on Robotics and Automation (ICRA)
- **Travel Grant** 2008
 IEEE International Conference on Robotics and Automation (ICRA)
- **Travel Grant** 2008
 Robotics: Science and Systems (RSS)
- **Distinguished Undergraduate Research Award** 2004
 Tel-Aviv University

Book Chapters

- Robert Gaschler, Dov Katz, Martin Grund, Peter A. Frensch and Oliver Brock
Intelligent Object Exploration
In Human Machine Interaction - Getting Closer. ISBN: 978-953-307-890-8, January 2012
- Dov Katz and Oliver Brock
Extracting Planar Kinematic Models Using Interactive Perception
In From Features to Actions: Unifying Perspectives In Computational and Robot Vision, Danica Kragic, Ville Kyrki (editors), Springer Verlag, June 2008

Refereed Journals

- Dov Katz and Oliver Brock
Learning to Manipulate Planar Articulated Objects
In IEEE Transactions on Robotics (under review)
- Dov Katz, Moslem Kazemi, J. Andrew Bagnell, Oliver Brock and Anthony Stentz
Three-Dimensional Interactive Perception
In IEEE Transactions on Robotics (in preparation)
- Dov Katz and Oliver
A Critical Look at Mobile Manipulation
In Foundations and Trends in Robotics (in preparation)

Refereed Conferences

- Dov Katz, Moslem Kazemi, J. Andrew Bagnell and Anthony Stentz
Interactive Segmentation, Tracking, and Kinematic Modeling of Unknown 3D Articulated Objects
In IEEE International Conference on Robotics and Automation, Karlsruhe, Germany, May 2013
(under review)
- Dov Katz, Moslem Kazemi, J. Andrew Bagnell and Anthony Stentz
Semi-Autonomous Manipulation of Natural Objects in Clutter
In IEEE International Conference on Robotics and Automation, Karlsruhe, Germany, May 2013
(under review)
- Dov Katz, Moslem Kazemi, J. Andrew Bagnell and Anthony Stentz
Autonomous Pile Clearing using Interactive Perception
In IEEE International Conference on Robotics and Automation, Karlsruhe, Germany, May 2013
(under review)
- Dov Katz, Oliver Brock and Andreas Orthey
Interactive Perception of Articulated Objects
In the 12th International Symposium of Experimental Robotics (ISER), India, December 2010
- Dov Katz and Oliver Brock

A Factorization Approach to Manipulation in Unstructured Environments

In the 14th International Symposium of Robotics Research (ISRR) 2009

- Dov Katz, Yuri Pyuro and Oliver Brock

Learning to Manipulate Articulated Objects in Unstructured Environments Using a Grounded Relational Representation

In Proceedings of Robotics: Science and Systems, Zurich, Switzerland, June 2008

- Dov Katz and Oliver Brock

Manipulating Articulated Objects With Interactive Perception

In Proceedings of the IEEE International Conference on Robotics and Automation, Pasadena, CA, USA, May 2008 (*Best Manipulation Paper finalist*)

- David G. Cooper, Dov Katz and Hava T. Siegelmann

Emotional Robotics: Tug of War

In the AAAI 2008 Spring Symposium on Emotion, Personality, and Social Behavior, 2008

Refereed Workshops

- Dov Katz and Oliver Brock

Interactive Segmentation of Articulated Objects in 3D

In Workshop on Mobile Manipulation: Integrating Perception and Manipulation at the IEEE International Conference on Robotics and Automation 2011, Shanghai, China, May 2011

- Dov Katz, Jacqueline Kenney and Oliver Brock

How Can Robots Succeed in Unstructured Environments?

In Workshop on Robot Manipulation: Intelligence in Human Environments at Robotics: Science and Systems, Zurich, Switzerland, June 2008

- Dov Katz and Oliver Brock

Extracting Planar Kinematic Models Using Interactive Perception

In Workshop on Robot Manipulation: Sensing and Adapting to the Real World at Robotics: Science and Systems, Atlanta, USA, June 2007

- Dov Katz and Oliver Brock

Interactive Perception: Closing the Gap Between Action and Perception

In Workshop: From features to actions: unifying perspectives in computational and robot vision at the IEEE International Conference on Robotics and Automation, Rome, Italy, April 2007

- Dov Katz, Emily Horrell, Yuandong Yang, Brendan Burns, Thomas Buckley, Anna Grishkan, Volodymyr Zhylykovskyy, Oliver Brock, and Erik Learned-Miller

The UMass Mobile Manipulator UMan: An Experimental Platform for Autonomous Mobile Manipulation

In Workshop on Manipulation in Human Environments at Robotics: Science and Systems, Philadelphia, USA, August 2006

Refereed Posters

- Dov Katz and J. Andrew Bagnell
Life-long Learning of Manipulation Expertise
Intel's University Collaboration Office Showcase, Santa Clara, CA, June 2012
- Dov Katz, Moslem Kazemi, J. Andrew Bagnell and Anthony Stentz
Interactive Segmentation, Tracking, and Kinematic Modeling of Unknown Articulated Objects
International Workshop on Point Cloud Processing at IEEE conference on Computer Vision and Pattern Recognition (CVPR), RI, June 2012
- Dov Katz and Oliver Brock
Learning to Model Articulated Objects in Unstructured Environments
In Workshop on Robotics Challenges for Machine Learning II at IEEE/RSJ 2008 International Conference on Intelligent Robots and Systems, Nice, France, September 2008

Presentations

- **Autonomous Manipulation.** VASC Seminar, Carnegie Mellon University, Pittsburgh, PA, USA, November 5th, 2012
- **Interactive Perception of Articulated Objects for Autonomous Manipulation.** Ph.D. Defense, Amherst, MA, USA, July 1st, 2011
- **Interactive Perception of Articulated Objects.** In the Interaction Modeling Intelligence lab lecture series, Berlin, Germany, June 2011
- **Interactive Segmentation of Articulated Objects in 3D.** In ICRA 2011 Workshop on Mobile Manipulation: Integrating Perception and Manipulation, Shanghai, China, May 2011
- **Proposal for a new IEEE/RAS Technical Committee on Mobile Manipulation.** In ICRA 2010, Anchorage, AK, May 2010.
- **Mobile Manipulation in Unstructured Environments.** In workshop on mobile manipulation at the American Association for Artificial Intelligence (AAAI) 2008 Chicago, USA, July 2008
- **Learning to Manipulate Articulated Objects in Unstructured Environments Using a Grounded Relational Representation.** In Robotics: Science and Systems, Zurich, Switzerland, June 2008
- **Extracting Planar Kinematic Models Using Interactive Perception.** In Workshop: Robot Manipulation: Sensing and Adapting to the Real World at Robotics: Science and Systems, Atlanta, USA, June 2007
- **Extracting Planar Kinematic Models Using Interactive Perception.** In New England Manipulation Symposium (NEMS), Troy, NY, USA, June 2007
- **The UMass Mobile Manipulator UMan: An Experimental Platform for Autonomous Mobile Manipulation.** In Workshop on Manipulation in Human Environments, at Robotics: Science and Systems, Philadelphia, USA, August 2006

Community Service

- **Guest editor:** Special issue of the IEEE Robotics and Automation Magazine on Mobile Manipulation June 2012
- **Co-chair and founder:** IEEE/RAS Technical Committee on Mobile Manipulation (<http://mobilemanipulation.org>) June 2012
- **Co-organizer:** ICRA Mobile Manipulation workshops series 2009-2012
- **Co-organizer:** RSS Mobile Manipulation workshops 2009-2012
- **Reviewer:** Association for the Advancement of Artificial Intelligence 2012
- **Program committee:** Association for the Advancement of Artificial Intelligence (AAAI) 2012
- **Reviewer:** Robotics: Science and Systems (RSS) 2012-2013
- **Reviewer:** IEEE International Conference on Robotics and Automation (ICRA) 2008-2013
- **Reviewer:** IEEE International Conference on Humanoid Robots 2008
- **Reviewer:** IEEE International Conference on Development and Learning (ICDL) 2010
- **Reviewer:** Journal of Robotics and Autonomous Systems 2012
- **Reviewer:** International Journal of Robotics Research 2012

Scientific Software

- Dov Katz, Clemens Eppner, and Georgios Fagogenis
TU Robotics Software Library (RS)
C++ software for control, motion planning, manipulation and grasping. The library provides both simulation and real-time capabilities for multiple robotic platforms.
- Dov Katz, Yuandong Yang, Filip Jagodzinski, and Brendan Burns
The UMass Amherst Robotics Software (URS, <http://robotics.cs.umass.edu/ursdocs>)
C++ software library for autonomous mobile manipulation and protein docking.
- Dov Katz and Sagi Perel
Hebrew Programming Language (HPL, <http://hpl.sourceforge.net>)
C++ implementation of a Hebrew scripting language.