

Mustafa Emre Karagozler

Department of Electrical and Computer Engineering
Carnegie Mellon University
Pittsburgh, PA 15213
(412) 268-4973
[emre@cmu.edu]

Education

- Ph.D. **Carnegie Mellon University**, Pittsburgh, Electrical and Computer Engineering, 2010 (expected).
Thesis Title: “Multi-scale Modular Robot Mechanisms Using Force-at-a-distance Effectors”, supervised by Prof. Seth C. Goldstein and Prof. David S. Ricketts.
- M.S. **Carnegie Mellon University**, Pittsburgh, Electrical and Computer Engineering, May 2007.
MS Report: “Harnessing Capacitance for Inter-Robot Latching, Communication, and Power Transfer”, supervised by Prof. Seth C. Goldstein.
- B.S. **Middle East Technical University**, Ankara, Turkey, Electrical and Electronics Engineering, June 2004.
Minor in Mechatronics. Graduated with High Honors.

Publications

- [1] S. C. Goldstein, T. C. Mowry, J. D. Campbell, M. P. Ashley-Rollman, M. De Rosa, S. Funiak, J. F. Hoburg, **M. E. Karagozler**, B. Kirby, P. Lee, P. Pillai, J. R. Reid, D. D. Stancil, M. P. Weller, “Beyond Audio and Video: Using Claytronics to Enable Pario.”, *AI Magazine*, to appear June 2009.
- [2] **M. E. Karagozler**, S. C. Goldstein, and J. R. Reid, “Stress-driven Mems Assembly + electrostatic forces = 1mm Diameter Robot.”, *In Proceedings of the IEEE International Conference on Intelligent Robots and Systems (IROS) '09*, Under Review.
- [3] M. P. Weller, **M. E. Karagozler**, B. Kirby, J. D. Campbell, and S. C. Goldstein, “Movement Primitives for an Orthogonal Prismatic Closed-Lattice-Constrained Self-Reconfiguring Module”, *Workshop on Self-Reconfiguring Modular Robotics at the IEEE International Conference on Intelligent Robots and Systems (IROS) '07*, October 2007.
- [4] **M. E. Karagozler**, J. D. Campbell, G. K. Fedder, S. C. Goldstein, M. P. Weller, and B. W. Yoon, “Electrostatic Latching for Inter-module Adhesion, Power Transfer, and Communication in Modular Robots”, *In Proceedings of the IEEE International Conference on Intelligent Robots and Systems (IROS) '07*, October 2007.
- [5] **M. E. Karagozler**, “Harnessing Capacitance for Inter-Robot Latching, Communication, and Power Transfer”, *MSc Report, Carnegie Mellon University, Department of Electrical and Computer Engineering*, May 2007.
- [6] **M. E. Karagozler**, B. Kirby, W.J. Lee, E. Marinelli, T. C. Ng, M. P. Weller, and S. C. Goldstein, “Ultralight Modular Robotic Building blocks for the Rapid Deployment of Planetary Outposts”, *Revolutionary Aerospace Systems Concepts Academic Linkage (RASC-AL) Forum 2006*”, May 2006.
- [7] **M. E. Karagozler**, E. Cheung, J. Kwon and M. Sitti, “Miniature Endoscopic Capsule Robot using Biomimetic Micro-Patterned Adhesives”, *IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics*, February 2006.

- [8] E. Cheung, **M. E. Karagozler**, S. Park, B. Kim and M. Sitti, "A New Endoscopic Microcapsule Robot Using Beetle Inspired Microfibrillar Adhesives", *IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, July 2005.

Research Experience

- Graduate Student Researcher**, Carnegie Mellon University, Pittsburgh, 2005 - present.
Research Assistant with Professor Seth C. Goldstein. Designing and developing mechanisms for adhesion, actuation, power transfer and communication between modular robots at micro and macro scale.
- Research Intern**, Air Force Research Lab, Hanscom AFB, 6/2008 - 8/2008.
Supervised by James R. Reid. Designed, simulated, and taped-out a high voltage $1\mu\text{m}$ SOI CMOS chip, to be used in a millimeter-scale electrostatically actuated robot.
- Research Intern**, Intel Research, Pittsburgh, 5/2007 - 8/2007.
Supervised by Jason D. Campbell, worked on Dynamic Physical Rendering (DPR). Designed, simulated, fabricated and tested a millimeter-scale electrostatically actuated rolling cylinder.
- Research Intern**, Liebherr Aerospace Lindenberg GmbH, Lindenberg, Germany, 7/2003 - 9/2003.
Designed a high power driver board for a digital signal processor controlled switched reluctance motor.

Teaching Experience

- Teaching Assistant**, Carnegie Mellon University, Pittsburgh, Fall 2008.
18-614 Micro-Electro-Mechanical Systems (MEMS). Graduate Level. Ranked Category 1 (highest ranking) nonnative English speaker TA, as required by the Pennsylvania law.

Awards

- Best student paper finalist**, 2005 IEEE International Conference on Advanced Intelligent Mechatronics (AIM 2005), July 2005.
- Presidents High Honors List**, (7 semesters) and Honors List (1 semester) during undergraduate education. Middle East Technical University, 2000-2004.
- B. K. ALTAY Honor Award**, for academic excellence. Department of Electrical and Electronics Engineering, Fall 2002.
- Two times bronze medalist** (national) and first prize winner (Aegean region), Turkish National Physics Olympiad, 1998/1999.

References

Available upon request.