Robin L. H. Deits

CONTACT INFORMATION
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EDUCATION

Massachusetts Institute of Technology: S.B. Physics, June 2011 **GPA: 4.9/5.0**

Concentrated in Robotics. Relevant coursework included:

- **CS:** AI, Computation Structures, EECS I & II, Robotics: Science & Systems
- **EE:** Power Electronics Laboratory, Microcomputer Project Laboratory
- **MechEng:** Mechanical Engineering Tools, Dynamics & Controls I

HONORS

Hertz Foundation Graduate Fellowship Recipient **2011**
Phi Beta Kappa Honors Society, Xi Chapter **May 2011 to Present**
Sigma Pi Sigma Physics Honors Society **May 2011 to Present**

EXPERIENCE

Engineering Consulting

Subcontracted by Battelle Memorial Institute **September 2011 to Present**

Consulted on a variety of interdisciplinary projects:

- Developed a software system for tracking the digging kinematics of a live razor clam for the MIT RoboClam project
- Produced a software package for gait control for a novel walking robot
- Conducted experiments and analyzed data to develop a natural language system for human-robot interaction

MIT, Department of EECS

Power Electronics and Microcomputer Lab Assistant **September 2010 to May 2011**

Assisted in teaching the laboratory component of 6.115: Microcomputer Project Lab and 6.131: Power Electronics Lab. Gained expertise designing and debugging systems ranging from power electronics to C and assembly code.

MIT, Department of EECS, Lab For Electromagnetic and Electronic Systems

Undergraduate Researcher **November 2010 to February 2011**

Developed an HTML and JavaScript interface for interacting with data from the NILM power consumption management system.

MIT, Department of Mechanical Engineering, Hatsopolous Microfluids Lab

Undergraduate Researcher **January 2009 to December 2010**

Worked on the MIT RoboClam project sponsored by Bluefin Robotics and Battelle to design an efficient, biologically inspired burrowing mechanism

- Designed and wrote a genetic algorithm to optimize the robot's control parameters
- Wrote control and data acquisition software for the robot
- Performed analysis of the efficiency and energy consumption of the system
- Ran tests of the robot in the lab and in the field

Siemens Dynamowerk, Berlin, Germany

Intern **June to August 2010**

Implemented an optimization system in MATLAB and achieved significant improvements in expected performance of magnetic bearing systems.

Mazemakers, Wellesley, MA

Senior Counselor **June to August 2008 & 2009**

Designed and taught lessons on a variety of subjects, including Robotics, Video Game Design, and Science.

- Introduced children as young as 8 to basic concepts of programming and engineering
- Developed course plans, activities, and demonstrations for science, photography, game design, art, and robotics classes.

Skills

Computer Science:

- Controls, data analysis, and optimization in MATLAB, Python, and LABVIEW
- Additional programming experience in C, Intel 8051 assembly, Java, and JavaScript
- Data acquisition using National Instruments DAQ hardware and software
- Design and implementation of genetic algorithms and neural networks
- Software including Windows/MacOS/Linux, MS Office, LaTeX, Eclipse, Vim

Electrical Engineering:

- Power electronics circuits, including buck/boost converters, transformers, and rectifiers.
- Analog and digital electronic systems, including Intel, Pic, and Atmel microcontrollers

Mechanical Engineering:

- Mechanical design using Solidworks CAD sofware
- Machine tools including the lathe, milling machine, and CNC mill

Publications

[1] Amos G Winter, Robin L H Deits, and Anette E Hosoi. "Localized fluidization burrowing mechanics of Ensis directus." *Journal of Experimental Biology (in press)*, 2011.

[2] Matthias Lang and Robin L H Deits. "Aktives Radiallager mit magnetischen Nutverschluss zur Reduktion der Wirbelstromverlusten (Active radial bearing with magnetic groove enclosure for the reduction of eddy current losses).", German patent application (filed) No. 102010064067.0, 2010.

[3] Amos G Winter, Robin L H Deits, Daniel S Dorsch, and Anette E Hosoi. "Multi-Substrate Burrowing Performance and Constitutive Modeling of RoboClam: A Biomimetic Robot Based on Razor Clams." *ASME 2010 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference*, October 2010. doi:10.1109/IROS.2010.5654364.

[4] Amos G Winter, Robin L H Deits, Daniel S Dorsch, Anette E Hosoi, and Alexander H Slocum. "Teaching RoboClam to Dig: The design, testing, and genetic algorithm optimization of a biomimetic robot." In "Intelligent Robots and Systems (IROS), 2010 IEEE/RSJ International Conference on," 617, pages 4231–4235. IEEE, 2010.

[5] Amos G Winter, Anette E Hosoi, Alexander H Slocum, and Robin L H Deits. "The Design and Testing of RoboClam: A Machine Used to Investigate and Optimize Razor Clam-Inspired Burrowing Mechanisms for Engineering Applications." In "Proceedings of the ASME 2009 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference IDETC/CIE 2009," 2009.