David W. Robinson

Home Address:
362 Memorial Dr.
Cambridge, MA 01239
(617) 225-7250
dwrobin@mit.edu

Work Address:
545 Technology Sq. Rm. 006
Cambridge, MA 02139
(617) 258-7350
http://www.ai.mit.edu/~dwrobin/

Professional Interest

Dynamic Systems: Modeling, Control, Design, and Fabrication

Education

Massachusetts Institute of Technology — Cambridge, MA
Doctor of Philosophy in Mechanical Engineering, *Expected June 2000*
Thesis Title — *Series Elastic Actuators: Theory and Application*
Minor — Microelectromechanical System Design and Fabrication

Massachusetts Institute of Technology — Cambridge, MA
Master of Science in Mechanical Engineering, *June 1996*
Thesis Title — *Integration of Rapid Prototyping and Reverse Engineering for Complex 3D Shape Design*

Brigham Young University — Provo, UT
Bachelor of Science in Mechanical Engineering, *April 1994*
Magna Cum Laude
Minors — Mathematics and Japanese

Experience

MIT Leg Laboratory — Cambridge, MA
Research Assistant, *July 1996 – present*

Designed and constructed *Robop*, a dynamically self-stabilizing monopod hopping robot which has no active feedback control. Assisted in the construction and control of *Spring Flamingo*, a dynamically stable planar bipedal walking robot. Currently, part of a student team designing two active control, dynamically stable robots: a 3D walking biped and a 3D walking and running quadraped. Thesis work is focused on novel force controllable actuators for these robots. The actuators have intentional compliant elements in series with the output and are called *Series Elastic Actuators.* Thesis scope covers actuator research in the electro-mechanical and electro-hydraulic domains.

MIT Mechanical Engineering Department — Cambridge, MA
Teaching Assistant, *Spring 1997*

Taught a weekly recitation, assisted students with lab and homework assignments, developed classroom demonstrations, and graded the homework and tests for the undergraduate *Control System Principles* course.

MIT CADLab and 3D Printing Laboratory — Cambridge, MA
Research Assistant, *September 1996 – June 1996*

Developed and demonstrated a design methodology for working with interchangeable physical and electronic models when designing complex 3D objects. Engineered a physical model digitizing method and built custom software for reconstructing 3D solid models from scatter point data. Also, developed a materials system for use in 3D printing and hand manipulation of the physical object.

BYU Instrumentation Laboratory Provo, UT
Lab Instructor and Consultant, *September 1993 – August 1994*

Taught a weekly lecture and assisted students with lab assignments in analog and digital instrumentation. Head instructor for digital instrumentation. Performed personal research in multiplexed signal processing and provided departmental instrumentation assistance for graduate student experiments involving: 1 – statistical analysis of bolt torques using experimental lubricants and 2 – CFRP golf club swing, impact, and fracture tests.

Daifuku Co., LTD Komaki, Japan
Summer Intern, *May – August 1992*

Developed diagnostic procedure and wrote inspection manuals for new cleanroom wafer transfer vehicles in Japanese and English. Interpreted for English speaking customers during site visits, in contract negotiations, and in training classes.

BYU Mathematics Laboratory Provo, UT
Tutor, *August 1991 – December 1992*

Assisted students, individually and in small groups, with Linear Algebra, Vector Calculus, Differential Equations, and Numerical Analysis. Also assisted with lower division mathematics including Calculus, Trigonometry, and Algebra.

The Church of Jesus Christ of Latter-Day Saints Fukuoka, Japan
Volunteer Representative, *May 1989 – May 1991*

Taught Christian beliefs and principles in local congregations as well as small group settings on the island of Kyushu. Also assisted local congregational leadership and trained and organized 5 – 30 other volunteer representatives.

Honors

Eagle Scout, Boy Scouts of America	1985
Engineering College Dean's List, Brigham Young University	1991 – 1993
Magna Cum Laude, Brigham Young University	1994
1st Place, National Control System Design Competition, ASME	1994
Tau Beta Pi Fellow, Massachusetts Institute of Technology	1994 – 1995

Societies

American Society of Mechanical Engineers	1991 – Present
Institute of Electrial and Electronic Engineers	1999 – Present
Phi Kappa Phi	1993 – Present
Sigma Xi	1996 – Present
Tau Beta Pi	1992 – Present

Publications

D. Robinson, E. Sachs, D. Gossard, *Interchangeable Physical and Electronic Models.* Submitted to the ASME Journal of Engineering Design, July 1998.

D. Robinson, *A Walk through the Leglab: Series Elastic Actuators and Virtual Model Control.* ICAR 1997, Monterey, CA. July 7–9, 1997.

extracurricular

BYU Men's Chorus *August 1993 – April 1994*

Participated in a 200 member all male student chorus at Brigham Young University. Sung a wide variety of music. Chorus produced two concert tapes, one CD, and produced a video for PBS called *Hymns of Thanksgiving.* Video first aired Thanksgiving 1995.

Japanese — Fluent in conversational *Japanese.* Lived and worked in Japan. Studied engineering specific technical *Japanese.*

Athletics and Activities — Biking, Camping, Hiking, Legos, Sailing, Snow Skiing, Soaring, Swiming, Triathlons, and Ultimate Frisbee