

Martin Buehler

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- Experience
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| Since 2008 | iRobot Corporation | Bedford, MA |
| Chief Robotacist, Research Principal Investigator | | |
| <ul style="list-style-type: none">Plan, implement and manage strategic growth in robot manipulation. | | |
| 2003–2008 | Boston Dynamics | Waltham, MA |
| Director of Robotics | | |
| <ul style="list-style-type: none">Successfully led all aspects of the BigDog project (with President and VP), from planning to technical solutions, from inception to Phase 3 with >10 M\$ (40 M\$ if all options are exercised).Contributed to all robotics activities, including major demos to Army/Marines.Brought two robotics projects with me (RHex, RiSE), started a third (LittleDog).Brought in numerous key people to drive the company's robotics success.Helped double the company employees, multiply revenues, and implemented and iterated on several new structures to facilitate and manage growth.Grew and managed a large experimental robotics team. | | |
| 1991–2003 | McGill University | Montreal, QC |
| Associate Professor, with Tenure, and Assistant Professor | | |
| <ul style="list-style-type: none">Director, Ambulatory Robotics Lab. Initiated, obtained funding for, and managed many robotics projects. Over \$1M funding in 2002/03 from DARPA, DRDC and other sources.Invented and designed RHex, and turned it into a major DARPA project. Led team at McGill responsible for platform and behavior development, sponsor demos. Grew into a multi-university, multi-million \$ project, and helped start subsequent DARPA Biodynamics program. RHex projects are going on today at U.S. startups, Boston Dynamics, YUCCA Mountain, and U.S. and Canadian university labs.Published over 100 peer reviewed journal articles, conference papers, and book chapters, on mobile robots, motor control and manipulation.Graduated over 30 Ph.D. and M.Eng. students. Taught undergraduate and graduate classes in Mechanical Engineering, Design, Mechatronics, Systems, and Robotics. Introduced team and project based teaching methods in large design classes (100-150 students). | | |
| 2003 | Mecheligent | Montreal, QC |
| Founder, President | | |
| <ul style="list-style-type: none">Competed with RHex as Future Combat Systems' SUGV. Partnered with Soar Technology, Ann Arbor, MI. Gave numerous demos and presentations, incl. Boeing, DARPA Tech, Ft. Leonard Wood, Air Force Protection, SwRI, YUCCA Mountain. | | |
| 2001-2002 | M1 Monopods | Montreal, QC |
| Co-founder, Senior team leader | | |
| <ul style="list-style-type: none">Developed first-ever jockey-driven dynamic running robot in VC funded venture. | | |
| 1990-1991 | MIT, Artificial Intelligence Lab | Cambridge, MA |
| Postdoctoral Associate | | |
| <ul style="list-style-type: none">Research in Dr. Marc Raibert's LegLab with quadruped and kangaroo robots. | | |

1984-1990 Yale University New Haven, CT

Research Assistant

- Developed new class of *mirror algorithms*, built a two-ball juggling robot.
- R&D in actuation technologies, parallel processing, vision systems, stability analysis.

Education

- Ph.D. and M.Sc., Yale University, Electrical Engineering 1990, 1985
PhD thesis: *Robotics in Intermittent Dynamical Environments*, Advisor: D. E. Koditschek
- Vordiplom, Universität Karlsruhe, Electrical Engineering 1983

Patents

- *Single Actuator Per Leg Robotic Hexapod*, U.S. 'RHex' Patent 6,481,513. Assigned to McGill U. and U. Michigan. Licensed since 2007.
- *Reconfigurable Robot Drive*, U.S. 'RHex Leg-Wheel-Flipper' Patent 7,398,843. Assigned to Boston Dynamics.
- *Robot and Robot Leg Mechanism*, U.S. 'RiSE' Patent Application #10,864,715. Assigned to Boston Dynamics.

Awards

- Invited Member, Advisory Board, The International Journal of Robotics Research, since 2008.
- APEX Grand Award 2007. Awarded to the Journal of Field Robotics, for the two Special Issues on the 2005 DARPA Grand Challenge, co-edited with Karl Iagnemma.
- Invited, editor-in-chief of an international robotics journal. Declined, 2007.
- Popular Mechanics Breakthrough Award (with Boston Dynamics' BigDog team), 2006.
- Fast track Green Card as extraordinary ability alien, 2005.
- McGill University Dawson Scholar, 2003.
- Invited feature survey article, J. Robotics Society of Japan, Anniversary Issue, 2002.
- Most cited article in the International Journal of Robotics Research: *RHex: A Simple and Highly Mobile Hexapod Robot*, with U. Saranli and D. Koditschek, July 2001.
- Best Paper Award: F. Aghili, M. Buehler, and J. M. Hollerbach, *Development of a High Performance Direct-Drive Joint*, Int. Conf. Intelligent Robots and Systems, 2000.
- Teaching Release Award, Canadian Institute for Advanced Research, 1997-98.
- Scholar, Canadian Institute for Advanced Research, 1991-95.
- NSERC/CIAR junior Industrial Research Chair, with John Hollerbach, 1991-94.
- Postdoctoral Fellowship, with Marc Raibert, MIT Artificial Intelligence Lab, 1990-91.

Talks and Presentations

Eight invited plenary, keynote or featured talks, including Safety, Security, and Rescue Robotics '06, International Conf. on Climbing and Walking Robots, 'bionik' Industry Congress Berlin, Carnegie Mellon Robotics Institute, Google NYC Tech Talk.

Over fifty international conference, symposia or workshop presentations of scientific papers. Forums include SPIE Defense & Security Symposium, Int. Conf. Robotics and Automation, Int. Symp. Experimental Robotics, Int. Conf. Intelligent Robots and Systems.

Over thirty invited seminars at national and international companies and universities (Diehl Munitionssysteme Nürnberg, German Army, DRDC, Superior Electric, Spar Aerospace, Boeing, Honda Research Lab, KTH Stockholm, Lab. de Robotique de Paris, Carnegie Mellon U., Princeton, Harvard, Yale, Stanford, Georgia Tech, Vanderbilt, U. Utah, Johns Hopkins, Laval U., U. Victoria, UBC, Tokyo U. of Electro-Communications, Olin College, Tech. U. München, U. Jena and more).

Many presentations as part of DARPA project participation in RHex, RiSE, LittleDog, BigDog.

Other activities

- Associate Editor, Journal of Field Robotics, since 2005.
- Editorial Board, The International Journal of Robotics Research, 2003-08.
- Associate Editor, IEEE Transactions on Robotics and Automation, 1998-2003.
- Co-edited Springer book *The 2005 DARPA Grand Challenge*. Book on DARPA Urban Challenge in preparation.
- Participated in organizing committees of over 20 international robotics conferences.
- Self-improvement courses (incl. Management of Technology, Scrum, Agile Project Management, project/time management, public speaking, stand-up comedy).

For more information, please visit www.martinbuehler.net