



PROFESSIONAL  
EXPERIENCE

**Biology Department, Brandeis University**, Waltham, MA **2002 - 2006**  
*Software and Systems Consultant*. Lead Developer for LifeSongX, behavioral and acoustical analysis software, used primarily to study *drosophila* courtship. LifesongX is currently deployed at Behavioral Genetics Laboratories at Brandeis University, Stanford University, and Dartmouth College.

**Bluefin Robotics**, Cambridge, MA. **2001**  
*Software Engineer*. Developed and refined key components and device drivers for their QNX-based real-time software for Autonomous Underwater Vehicle (AUV) control.

**Autonomous Underwater Vehicles (AUV) Lab, MIT**, Cambridge, MA **1999-2001**  
*Research Engineer*. Assisted in developing, building and piloting the lab's new class of robotic submersibles. Over 15 weeks of at-sea deployment.

HONORS AND  
AWARDS

- Student Developer Scholarship Award, Apple World Wide Developer Conference. June, 2005.
- Sigma Xi Honorary Research Society. Associate Member since April, 1999.
- First Place Team. 1997, 1998 and 1999 Philadelphia Regional IEEE Micromouse Competition.

REFEREED  
PUBLICATIONS

**Rieffel, J.**, Valero-Cuevas, F. and Lipson, H. (in review, manuscript # rsif-2008-0482) "Morphological Communication: Exploiting Coupled Dynamics in a Complex Mechanical Structure to Achieve Locomotion". *Journal of the Royal Society Interface*.

**Rieffel, J.**, Valero-Cuevas, F. and Lipson, H. (in review, manuscript # CAS-D-07-00774R2) "Automated Discovery and Optimization of Large Irregular Tensegrity Structures". *Computers and Structures Journal*.

Saunders, F., **Rieffel, J.** and Rife, J. (2009) "A Method of Accelerating Convergence for Genetic Algorithms Evolving Morphological and Control Parameters for a Biomimetic Robot", *International Conference on Autonomous Robots and Agents*. (to appear)

**Rieffel, J.**, Trimmer, B. and Lipson, H. (2008) "Mechanism as mind: what tensegrities and caterpillars can teach us about soft robotics." *Artificial Life XI: Proceedings of the Eleventh International Conference on the Simulation and Synthesis of Living Systems*.

**Rieffel, J.**, Valero-Cuevas, F. and Lipson, H. (2007) "Growing form-filling tensegrity structures using map L-systems". *Proceedings of the 2007 Genetic and Evolutionary Computation Conference*.

**Rieffel, J.**, Stuk, R. and Lipson, H. (2007) "Locomotion of a Tensegrity Robot Via Dynamically Coupled Modules". *Proceedings of the 2007 International Conference on Morphological Computation*.

**Rieffel, J.** and Pollack, J. (2006) "An Endosymbiotic Model for Modular Acquisition in Stochastic Developmental Systems". *Proceedings of the Tenth International Conference on the Simulation and Synthesis of Living Systems (ALIFE X)*.

**Rieffel, J.** and Pollack, J. (2005) "Crossing the Fabrication Gap: Evolving Assembly Plans to Build 3-D Objects". *2005 IEEE Congress on Evolutionary Computation*.

**Rieffel, J.** and Pollack, J. (2005) "Automated Assembly as Situated Development: Using Artificial Ontogenies to Evolve Buildable 3-D Objects". *Proceedings of the 2005 Genetic and Evolutionary Computation Conference*.

**Rieffel, J.** and Pollack, J. (2005). "Evolutionary Fabrication: The Emergence of Novel Assembly Methods in Artificial Ontogenies". *SEEDS workshop, at the 2005 Genetic and Evolutionary*

Computation Conference.

**Rieffel, J.** and Pollack, J. (2005) “Evolving Assembly Plans for Fully Automated Design and Assembly.” Proceedings of the 2005 NASA/DoD Conference on Evolvable Hardware.

**Rieffel, J.** and Pollack, J. (2004) “Artificial Ontogenies for Real World Design and Assembly.” Ninth International Conference on the Simulation and Synthesis of Living Systems (ALIFE9) Workshop: Self-Organization and Development in Artificial and Natural Systems (SODANS) 2004.

**Rieffel, J.** and Pollack, J. (2004) “The Emergence of Ontogenic Scaffolding in a Stochastic Development Environment”. Proceedings of the 2004 Genetic and Evolutionary Computation Conference.

**Rieffel, J.**, DiLeo, C., and Maxwell, B.A. (1999) “Evolving Optimal Histogram Parameters for Object Recognition”, Proceedings, SPIE Intelligent Robots and Computer Vision XVIII.

PROFESSIONAL  
ACTIVITIES

**Conferences and Workshops**

- *Chair*, Session on Soft and Amorphous Robotics, ALife XI, Southampton, UK. 2008
- *Program Committee*, Multiple Tracks, GECCO 2009. Artificial Life Track, GECCO 2008. Generative and Developmental Systems Track, GECCO 2007.
- *Invited Participant*, Developmental Systems Workshop, AAAI Fall Symposium 2006, Washington, DC.

**Invited Talks**

- *Icosystem Inc.*, “Mechanism as mind: what caterpillars and camping tents can teach us about soft robotics”. Science Friday Guest Speaker Series. June, 2008 .
- *Tufts University*, “What tensegrities can teach us about caterpillar neuromechanics”. Biology Department Spring Seminar Series. March, 2008.
- *Cornell University*, “Evolutionary Fabrication: the co-evolution of form and formation”. Machines and Organisms Seminar Series. September, 2006.

REFERENCES

- **Barry Trimmer**, Tufts University Biology Department (*barry.trimmer@tufts.edu*)  
Postdoctoral Advisor
- **Hod Lipson**, Cornell University Mechanical and Aerospace Engineering (*hod.lipson@cornell.edu*)  
Postdoctoral Advisor
- **Jordan Pollack**, Brandeis University Computer Science Department (*pollack@brandeis.edu*)  
Ph.D. Advisor
- **Harry Mairson**, Brandeis University Computer Science Department (*mairson@cs.brandeis.edu*)  
Primary Teaching Reference