

Bradford Larsen

Curriculum Vitae

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Education

- 2008–2010 **M.S. Computer Science**, *University of New Hampshire*, Durham, NH.
- 3.47 / 4.00 GPA
 - Expected May 2010
 - Thesis: An Embedded, Optimizing Compiler for Array Operations on a GPU
 - Advisors: Philip J. Hatcher, R. Daniel Bergeron, and Kai Germaschewski
- 2004–2009 **B.A. Philosophy**, *University of New Hampshire*, Durham, NH.
- 3.73 / 4.00 overall GPA
 - 3.90 / 4.00 in-major GPA
- 2004–2008 **B.S. Computer Science**, *University of New Hampshire*, Durham, NH.
- 3.72 / 4.00 overall GPA
 - 3.79 / 4.00 in-major GPA
 - Honors-in-major
 - German Certificate for Computer Scientists
 - Thesis: Object Replication in the Large Address Space Virtual Machine
 - Advisor: Philip J. Hatcher

Publications

Bradford Larsen. Misconceptions and computer science. *University of New Hampshire INQUIRY online journal of undergraduate research*, March 2009. Available at <http://www.unh.edu/inquiryjournal/09/commentary/larsen.html>.

Bradford Larsen. Switchback: An efficient hierarchical heuristic search algorithm. *AAAI*, 2010. To be submitted to *AAAI* 2010.

Ronald Veldema, Bradford Larsen, and Michael Philippsen. A DSM protocol aware of both thread migration and memory constraints. In Teofilo F. Gonzalez, editor, *Proceedings of the 20th IASTED International Conference on Parallel and Distributed Computing and Systems*, pages 291–295, Anaheim, CA, USA, November 2008. ACTA Press. Awarded Best Paper in the category “Distributed Information and Systems”.

Research and Teaching Experience

- 2007–2009 **Research Assistant**, *Space Science Research Center*, Durham, NH.
- Performed visualization of hundreds of gigabytes of data from a magnetohydrodynamic simulation using VisIt. Rewrote conversion tools for this purpose, causing data conversion to take only hours instead of months.
 - Wrote a C library for manipulating the simulation data format, making use of OpenMP for shared memory parallelism. Wrote a Python interface to this library.
 - Maintained and modified a VisIt reader plugin for the simulation data format.
 - Rewrote a legacy ad-hoc build system for a magnetohydrodynamic simulation using GNU Autotools.
- 2007 **Research Assistant**, *Friedrich-Alexander University*, Erlangen, Germany.
- Implemented object replication in a distributed virtual machine for Java that is optimized for memory-bound problems. The virtual machine provided the application programmer a distributed shared address space and ran on a cluster. The replication mechanism improved performance by over 300% for some real programs. The implementation used an active message wrapper around standard MPI for communication.
- 2006 **Logic Tutor**, *University of New Hampshire*, Durham, New Hampshire, Department of Philosophy.
- Held a weekly recitation for approximately 10 students in the introductory philosophical logic course, in which we reviewed the course material and worked through sample problems. Graded assignments.

Professional Experience

- 2007 **Software Contractor**, *Evergreen Solar*, Marlboro, MA.
- Created an automation utility for solar panel simulation and validation. Physical panels were compared with simulated panels that were generated from solar cell data, a curve fitting program, and SPICE. The application was typically run with data from thousands of manufactured solar panels. The application was written in Python and used wxPython as its GUI toolkit.
- 2005–2006 **Performance Algorithms Group Intern**, *Mercury Computer Systems*, Chelmsford, MA.
- Contributed to the implementation of VSIPL (<http://www.vsipl.org>) for Mercury's multicomputer systems. I refactored and expanded the unit test infrastructure. I wrote several shell scripts, sed and awk scripts, and maintained an extensive build system that touched several thousand source files. I also contributed to the implementation of the library with new functions and bugfixes.
 - Installed and configured wiki software used by over 100 software developers and engineers.
 - Created a prototype graphical interface and code generator for distributed computing middleware. This application generated appropriate C function calls to Mercury's MPI-like Parallel Acceleration System middleware based on a graphical arrangement of sets of processes and communication channels. The prototype was implemented in Java using Swing.
 - Maintained an Eclipse plugin that allowed remote debugging of programs running on a Cell-based computer.

- 2004–2005 **Fast Ethernet Test Engineer**, *UNH Interoperability Lab*, Durham, NH.
- Worked with vendors to perform interoperability tests on prototype Fast Ethernet devices. Performed conformance tests of devices implementing Clause 4 (MAC) from the IEEE 802.3 standard. Explained test results to vendors.

Awards, Grants, and Scholarships

- 2009 University of New Hampshire Department of Philosophy Barlow Prize for the best undergraduate philosophy paper; honorable mention, for paper entitled *Intelligent Machines: A Pipe Dream*
- 2008–2009 NASA New Hampshire Space Grant Consortium Graduate Fellowship
- 2008 University of New Hampshire Summer Undergraduate Research Fellowship; declined
- 2008 University of New Hampshire Computer Science Achievement Award
- 2007 University of New Hampshire International Research Opportunities Fellow
- 2003 Eagle Scout, Boy Scouts of America

Professional and Academic Affiliations

- 2007– Pi Mu Epsilon; member
- 2007– Upsilon Pi Epsilon; University of New Hampshire chapter president
- 2006–2007 Association for Computing Machinery; member

Languages

English **Native**

German **Intermediate**

Six semesters of study and three months spent in Germany

Volunteer and Professional Work

- April 2009 University of New Hampshire Computer Science Open House presenter
- March 2009 University of New Hampshire Exploring High Tech Day guide
- April 2008 University of New Hampshire Computer Science Open House presenter
- April 2008 University of New Hampshire College of Engineering and Physical Sciences Open House undergraduate research representative
- Spring 2008 University of New Hampshire *Dialectic* undergraduate journal of philosophy editor