

Christopher Lupo

Curriculum Vitae

Contact Computer Science Department
California Polytechnic State University
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Research Interests

Code Generation, Compilers, Computer Architecture, Embedded System Design.

Education

University of California, Davis
Ph.D., Computer Engineering, September 2008
Dissertation: "Precise Register-Allocation Spill-Code Costing and Placement"
Advisor: Prof. Kent Wilken
M.S., Computer Engineering, June 2007

California State University, Fresno
B.S., Electrical Engineering, Magna Cum Laude, May 1997

Academic Experience

2008–Present **California Polytechnic State University, San Luis Obispo**
Assistant Professor
Computer Engineering Program and Computer Science Department
Courses Taught
Interdisciplinary Senior Project Design, ENGR 470
Computer Architecture, CPE 315
Computer Engineering Capstone I, CPE 350
Computer Engineering Capstone II, CPE 450
Introduction to Computer Organization and Design, CSC 225
Junior Faculty Learning Committee, Sept. 2008 – June 2009
Selected to participate as a member of a nine-person campus-wide team of tenure-track faculty, using social responsibility as a theme to support an overall group project, which is an interdisciplinary teaching toolkit. This toolkit will be designed to serve as a resource for faculty at Cal Poly and presented to the wider campus community in 2009.

1997–2008 **University of California, Davis**
Associate Instructor positions
Instructor of record. Responsible for all aspects of instruction. Designed and delivered syllabus, lectures, laboratory assignments, exams, homework, projects grading. Held office hours, managed teaching assistants and readers, assigned final grades.
Courses Taught
Computer Architecture, EEC 170
Digital Systems I, EEC 180A
Microcomputer-Based System Design, EEC 172
Computer Structure and Assembly Language, EEC 70

Teaching Assistant positions

Assisted instructors with design of laboratory and homework assignments, led laboratory sessions, proctored exams, held office hours, assisted with grading.

Microcomputer-Based System Design, EEC 172

Parallel Computer Architecture, EEC 171

Computer Structure and Assembly Language, EEC 70

Teaching Assistant Consultant, 2003–2004

Teaching Resources Center, UC Davis. Campus wide graduate fellowship position, mentored and consulted with other teaching assistants to help improve teaching effectiveness. Worked with teams to develop and deliver workshops and presentations on teaching topics and engaged in continuing professional development activities.

Research Experience

- 2000–2008 **Doctoral Research**
Investigated and developed algorithms to improve code quality for heuristic register allocation that are sensitive to program structure, variable usage patterns, and compiler and operating system register usage conventions. Code quality measured through spill code reduction. Other metrics of interest include performance, code size, and power consumption.
- 1997–2000 **Research Assistant**
Performed development and design work on UC Davis's Optimal Register Allocator (ORA), modeling the register allocation problem as a 0-1 integer linear programming problem.
- Fall 1993 **Undergraduate Research Semester**
Selected for a Science and Engineering Research Semester at Oak Ridge National Laboratory, Tennessee. Under the direction of Dr. Francois G. Pin, implemented a device driver for an omni-directional robotic platform, and simulated a path planning algorithm with obstacle avoidance for a robotic manipulator.

Funding and Support

- July 2009 **Google – Google Research Awards**
Mobile Application Development Course. Co-PIs D. Janzen, C. Lupo. \$20,000.
- June 2009 **Sun Microsystems – Academic Excellence Grant**
Compiler Tuning for Power Efficiency. PI C. Lupo. \$11,900.
- March 2009 **Google – Unrestricted gift**
Equipment gift for Android mobile platform development. Co-PIs D. Janzen, C. Lupo. \$9,600.
- February 2009 **TemperatureAlert – Unrestricted gift**
Equipment gift for temperature sensing and power measurement. PI C. Lupo. \$200.

Publications

Submitted for Review

Christopher Lupo and Kent Wilken. A spill-code placement algorithm based on maximal flow. In *CGO '10: Proceedings of the International Symposium on Code Generation and Optimization*, 2010.

Conference Papers

Christopher Lupo and Kent Wilken. Post register allocation spill code optimization. In *CGO '06: Proceedings of the International Symposium on Code Generation and Optimization*, pages 245–255, Washington, DC, USA, 2006. IEEE Computer Society.

Refereed Presentations

Brian Greenwood, Jennifer Becker, and Christopher Lupo. College “Kids These Days!” Student and faculty perceptions of the millennial generation. In *12th CSU Regional Symposium on Unversity Teaching*, San Luis Obispo, CA, USA, May 2009.

Other Related Experience

- 2004–2008 **Systems Administrator**
UC Davis Electrical and Computer Engineering Department. Responsible for core services, network infrastructure, software package installation and maintenance.
- 2000–2002 **Consulting Expert**
California Department of Justice. Developed software test procedures to prove or disprove manufacturer’s technological claims. Measured and analyzed hardware performance.

University Service

- Fall 2008–Present Member of the Cal Poly Computer Engineering Program Council
- 2009–Present Co-advisor for Cal Poly’s Eta Kappa Nu ($\eta\kappa\nu$) Honors Society
- 2009–Present Co-advisor for Cal Poly’s Linux Users’ Group (CPLUG)

Professional Affiliations

- 2007–Present Association for Computing Machinery (ACM)

Honors and Awards

- 2003–2004 Teaching Assistant Consultant Fellowship
- 1998–1999 UC Davis GAANN (Graduate Assistance in Areas of National Need) Fellowship Recipient
- 1997–1998 UC Davis GAANN Fellowship Recipient