

# John Giacomoni

## Curriculum Vitae

### CONTACT INFORMATION

Department of Computer Science  
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### EDUCATION

- University of Colorado at Boulder**, Boulder, Colorado (Aug. 2004 - Present)  
College of Engineering and Applied Science, Department of Computer Science  
Doctor of Philosophy in Computer Science, in progress  
Advisor: Manish Vachharajani
- University of Colorado at Boulder**, Boulder, Colorado (Aug. 2004 - May 2006)  
College of Engineering and Applied Science, Department of Computer Science  
Master of Science in Computer Science, May 2006  
Thesis: PShm: High-Rate Packet Manipulation in User-Space  
Advisors: John K. Bennett and Douglas C. Sicker
- University of Colorado at Boulder**, Boulder, Colorado (Aug. 2004 - May 2006)  
Center for Science and Technology Policy  
Graduate Certificate in Science and Technology Policy, May 2006
- University of Illinois at Urbana-Champaign**, Urbana, Illinois (Aug. 1993 - May 1997)  
College of Engineering, Department of Computer Science  
Bachelor of Science in Computer Science, May 1997

### EXPERIENCE

- Chief Software Architect (Co-Founder)** (Mar. 2008 - Present)  
*LineRate Systems*, Colorado
- Software Engineering Intern** (Sept. 2007 - Dec. 2007)  
*System Infrastructure, Software Performance Tools*  
*Google*, Boulder, Colorado
- Software Engineering Intern** (May 2007 - Sept. 2007)  
*System Infrastructure, Software Performance Tools*  
*Google*, Mountain View, California
- Graduate Research Assistant** (Aug. 2005 - Dec. 2005)  
*Department of Computer Science*  
*University of Colorado at Boulder*, Boulder, Colorado
- Professional Research Assistant** (July 2001 - Aug. 2004)  
*Software Engineering Research Laboratory*  
*University of Colorado at Boulder*, Boulder, Colorado
- Systems Analyst** (Oct. 2000 - June 2001 )  
*Medexpert International, Inc.*, Champaign, Illinois
- Developer** (June 2000 - Oct. 2000 )  
*Medexpert International, Inc.*, Champaign, Illinois
- Trusted Systems Engineer** (Jan. 2000 - June 2000 )  
*Argus Systems Group*, Savoy, Illinois
- Trusted Quality Assurance Engineer** (May 1999 - Jan. 2000 )  
*Argus Systems Group*, Savoy, Illinois

- Self** (Feb. 1998 - Present )  
*Ombra*
- Programmer** (Aug. 1997 - Feb. 1998 )  
*MacQuarium*, Atlanta, Georgia
- Student Developer**, Habañero Project (Feb. 1997 - May 1997 )  
*Software Development Division*  
*National Center for Supercomputing Applications*, Urbana, Illinois
- Student Developer**, Macintosh Mosaic Project (May 1995 - Feb. 1997 )  
*Software Development Division*  
*National Center for Supercomputing Applications*, Urbana, Illinois

## RECOGNITION

Clive Fraser Baillie Memorial Travel Award, Fall 2007

## PROFESSIONAL ACTIVITIES

### REVIEWS

Conferences: ISCA, ANCS

## PRESENTATIONS

### CONFERENCE PRESENTATIONS

- “FastForward for Efficient Pipeline Parallelism: A Cache-Optimized Concurrent Lock-Free Queue,” Presented at the ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP), Salt Lake City, Utah, February 2008.
- “Frame Shared Memory: Line-Rate Networking on Commodity Hardware,” Presented at the ACM/IEEE Symposium on Architectures for Networking and Communications Systems (ANCS), Orlando, Florida, December 2007.
- “Difficulties in Providing Certification and Assurance for Software Defined Radios,” Presented at the IEEE Symposium on New Frontiers in Dynamic Spectrum Access Networks (DySPAN), Baltimore, Maryland, November 2005.

### WORKSHOP PRESENTATIONS

- “Supporting Fine-grain TLP with Selective Timesharing,” Presented at the spring 2008 Front Range Architecture Compilers Tools and Languages Workshop (FRACTAL), Denver University, Denver, Colorado, April 2008.
- “Operating System Support for Fine-Grain Parallelism on Multicore Architectures,” Presented at the fall 2007 Front Range Architecture Compilers Tools and Languages Workshop (FRACTAL), University of Colorado at Boulder, Boulder, Colorado, October 2007.
- “Operating System Support for Pipeline Parallelism on Multicore Architectures,” Presented at the Workshop on Operating System support for Heterogeneous Multicore Architectures (OSHMA), Brasov, Romania, September 2007
- “Towards a Toolchain for Pipeline-Parallel Programming on CMPs,” Presented at the Second Software Tools for Multi-Core Systems (STMCS) Workshop, San Jose, California, March 2007.
- “Development Support for Concurrent Threaded Pipelining,” Presented at the spring 2007 Front Range Architecture Compilers Tools and Languages Workshop (FRACTAL), Colorado State University, Ft. Collins, Colorado, February 2007.

### INVITED TALKS

- “FastForward for Efficient Pipeline Parallelism: Cache-Optimized Concurrent Lock-Free Queue,” Presented to the MCS and ALCF Divisions at Argonne National Laboratory, Argonne, Illinois, May 13, 2008.

“FastForward for Efficient Pipeline Parallelism: Cache-Optimized Concurrent Lock-Free Queue,” Presented to the EECS Department at Northwestern University, Evanston, Illinois, May 12, 2008.

“FastForward for Efficient Pipeline Parallelism: Cache-Optimized Concurrent Lock-Free Queue,” Presented to Members of Google’s Engineering Staff at the Mountain View, Seattle, and Boulder offices, April 23, 2008.

“Frame Shared Memory: Line-Rate Networking on Commodity Hardware,” Presented to the Department of Computer Science at the University of Denver, Denver, CO, October 2007.

#### OTHER PRESENTATIONS

“Towards Culture/Individual Bias Free Privacy Documentation,” Presented to the Software Engineering Research Laboratory, Department of Computer Science, University of Colorado at Boulder, December 2002.

“Economics, Information Security, and the SERL Group,” Presented to the Software Engineering Research Laboratory, Department of Computer Science, University of Colorado at Boulder, May 2002.

“Securing Content Based Routing Publish/Subscribe (SIENA),” Presented to the Software Engineering Research Laboratory, Department of Computer Science, University of Colorado at Boulder, January 2002.

“Security Engineering (Overview),” Presented to the Software Engineering Research Laboratory, Department of Computer Science, University of Colorado at Boulder, January 2002.

#### GRANTS

“Multicore Laboratory,” Engineering Excellence Fund, University of Colorado at Boulder, \$25,000, April 2008.

“Developing Multicore Undergraduate Lab Experiments,” Engineering Excellence Fund, University of Colorado at Boulder, \$2,000, March 2007. (Sole PI)

#### UNIVERSITY SERVICE

Entrepreneurs Unplugged, organizing committee, AY 2008-2009

CU New Venture Challenge, marketing committee, AY 2008-2009

Graduate Committee, junior graduate student representative, AY 2007-2008

#### PUBLICATIONS

##### REFEREED CONFERENCE PUBLICATIONS

Graham Price, John Giacomoni, and Manish Vachharajani, “Visualizing Potential Parallelism in Sequential Programs,” to appear in *Proceedings of the 17th International Conference on Parallel Architectures and Compilation Techniques (PACT)*, Toronto, Canada, October 2008.

John Giacomoni, Tipp Moseley, and Manish Vachharajani, “FastForward for Efficient Pipeline Parallelism: A Cache-Optimized Concurrent Lock-Free Queue,” in *Proceedings of the 13th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP)*, Salt Lake City, Utah, February 2008.

John Giacomoni, John K. Bennett, Antonio Carzaniga, Douglas C. Sicker, Manish Vachharajani, and Alexander L. Wolf, “Frame Shared Memory: Line-Rate Networking on Commodity Hardware,” in *Proceedings of the ACM/IEEE Symposium on Architectures for Networking and Communications Systems 2007 (ANCS)*, pp. 27-36, Orlando, Florida, December 2007.

John Giacomoni and Douglas C. Sicker, “Difficulties in Providing Certification and Assurance for Software Defined Radios,” in *Proceedings of the IEEE Symposium on New Frontiers in Dynamic Spectrum Access Networks (DySPAN)*, Baltimore, Maryland, November 2005.

##### REFEREED WORKSHOP PUBLICATIONS

John Giacomoni and Manish Vachahrajani, “Operating System Support for Pipeline Parallelism on Multicore Architectures,” in *2007 Workshop on Operating System support for Heterogeneous Multicore Architectures (OSHMA)*, Brasov, Romania, September 2007.

John Giacomoni, Tipp Moseley, Graham Price, Brian Bushnell, Manish Vachhrajani, and Dirk Grunwald, "Toward a Toolchain for Pipeline Parallel Programming on CMPs," in *Proceedings of the 2007 Workshop on Software Tools for Multicore Systems (STMCS)*, San Jose, CA, March 2007.

#### REFEREED POSTERS

John Giacomoni, Tipp Moseley, and Manish Vachharajani, "FastForward for Efficient Pipeline Parallelism," in *Proceedings of the 16th International Conference on Parallel Architectures and Compilation Techniques (PACT)*, September 2007.

#### TECHNICAL REPORTS

John Giacomoni, Tipp Moseley, and Manish Vachharajani, "FastForward for Efficient Pipeline Parallelism," *University of Colorado Technical Report CU-CS-1028-07*, April 2007.

John Giacomoni and Manish Vachharajani, "Harnessing Chip-Multiprocessors with Concurrent Threaded Pipelines," *University of Colorado Technical Report CU-CS-1024-07*, January 2007.

John Giacomoni, Tipp Moseley, and Manish Vachharajani, "FastForward for Concurrent Threaded Pipelines," *University of Colorado Technical Report CU-CS-1023-07*, January 2007.

John Giacomoni, John K. Bennet, Antonio Carzaniga, Manish Vachharajani, and Alexander L. Wolf, "FShm: High-rate Frame Manipulation in Kernel and User-Space," *University of Colorado Technical Report CU-CS-1015-06*, October 2006.

#### OTHER PUBLICATIONS

John Giacomoni, "Review of *Academy & the Internet*, by Helen Nissenbaum and Monroe E. Price eds.," in *Ethics and Information Technology*, vol. 8, no. 2, pp. 88-90, June 2006.

John Giacomoni, "PShm: High-Rate Packet Manipulation in User-Space," M.S. Thesis, University of Colorado at Boulder, May 2006.

John Giacomoni and Douglas C. Sicker, "Software Radio: Certification Issues," in *Avionics Magazine*, vol. 29, no. 11, p. 82, November 2005.