

Nalini Vasudevan

- CONTACT INFORMATION 400 W 119th Street, Apt 2S Phone: +1-646-427-8232
New York City, NY-10027. E-mail: naliniv@cs.columbia.edu
- INTERESTS Programming Principles, Concurrency, Static Analysis
- EDUCATION
- PhD Candidate, Computer Science, **Columbia University**. (2007 - Present)
 - ◇ Advisor: Prof. *Stephen Edwards*. GPA: 4.05 (on a scale of 4)
 - MPhil, Computer Science, **Columbia University**. (2007 - 2009)
 - ◇ GPA: 4.05 (on a scale of 4)
 - Master of Science, Computer Science, **Columbia University**. (2006 - 2007)
 - ◇ GPA: 4.05 (on a scale of 4)
 - Bachelor of Engineering, Computer Science, **RV College of Engineering, Visveswariah Technological University (VTU)**, India. (2001 - 2005)
 - ◇ First Class with Distinction, Eight Semesters aggregate - 85 %. GPA: 4 (on a scale of 4)
- WORK EXPERIENCE
- Graduate Research Assistant, **Columbia University**, under Prof. *Stephen Edwards*, Languages and Compilers Group. (Jan 2007 - Present)
 - ◇ Working on code generation and static verification techniques for concurrent languages
 - Research Intern, Alcatel-Lucent **Bell Laboratories**, under *Kedar Namjoshi*, Computing and Software Principles Group. (Jun 2009 - Aug 2009)
 - ◇ Worked on the design and verification of lock-free data structures
 - Research Co-op, **IBM T.J.Watson Research Center**, under *Vijay Saraswat* and *Olivier Tardieu*, Data Access and Language Integration Group. (Jun 2008 - Aug 2008)
 - ◇ Worked on the analysis of clocks in the X10 programming language
 - Research Intern, **Microsoft Research Limited (UK)**, under *Satnam Singh*, Programming, Principles and Tools Group. (Jun 2007 - Aug 2007)
 - ◇ Built a deterministic concurrent library in Haskell
 - Software Engineer, **Yahoo R&D Center (India) Pvt Ltd**, Direct R&D Unit. (July 2005 - Feb 2006)
 - ◇ Developed a heuristic based trigger management system that maps yahoo users' events to triggers
 - Research Intern, **Indian Institute of Science (IISc)**, under Prof. *Anurag Kumar*, Communication and Networking Lab, ECE Dept. (Jan 2005 - May 2005)
 - ◇ Worked on localization of ad-hoc sensor networks
- TEACHING
- Instructor, **Programming Language (C)**, Columbia University. (Fall 2009)
 - Course Manager and Instructor, **Columbia Video Network - Programming Language (C)**, Columbia University. (Fall 2009)
 - Teaching Assistant, **Embedded System Design**, Columbia University. (Spring 2009)
 - Teaching Assistant, **Programming Languages and Translators**, Columbia University. (Fall 2008)
 - Teaching Assistant, **Advanced Programming**, Columbia University. (Summer 2008)

- Teaching Assistant, **Introduction to Computer Programming in C**, Columbia University. (*Fall 2006*)

ACTIVITIES

- Reviewer for the conferences:
 - ◊ ACM Languages, Compilers and Tools for Embedded Systems (LCTES 2009).
 - ◊ ACM/IEEE Hardware/Software Codesign and System Synthesis (CODES+ISSS 2008).
- PhD Committee Member, Department of Computer Science, Columbia University, 2008-present.
- Mentor, Women in Computer Science (WICS), Columbia University, 2008-present.
- Coordinator, Emerging Scholars Program, Columbia University, 2009.
- ACM and SIGPLAN member
- Organizer of *Iota 2003*, Technical Fest, India.

HONORS

- Computer Science Department Research Assistantship, Columbia University (2007- present).
- IBM Thanks! Award, 2008.
- Best Undergraduate Thesis of the year 2005, RV College of Engineering (VTU).
- Best Research Project Award, Iota-2004, Technical Fest, India.
- Merit Seat- 80% tuition waiver during all four years of undergraduate education. Given to top 10%.
- Qualified in GATE 2004 (Graduate Aptitude Test in Engineering), India with a percentile of 99.13.
- 2nd place in Spot Programming at Date with .NET V2.0 organized by .NET Users Group, 2004.
- 3rd place in Spot Programming at Iota-2004, Technical Fest, India.
- 1st place in System Modeling - C held during Impulse-2004 (Organized by IETE, India).
- 51st rank (100,000 candidates) in the Common Engineering Entrance Test (CET), 2001, India.
- Certified by the Assoc. of Mathematics Teachers of India (National Board of Higher Mathematics).

GRANTS

- *Yahoo!-Columbia Travel scholarship* for Grace Hopper Celebration'09 at Tucson. (\$600).
- *ACM SIGPLAN PAC Award* to attend PLDI'09 at Dublin, Ireland. (\$650).
- *Google PLDI'2009 Grant* to attend PLDI'09 at Dublin, Ireland. (\$600).
- *CRA-W Grant* to attend the CRA-W Grad Cohort Program at San Mateo, 2009. (\$500).
- *CRA/CDC Scholarship* to attend PLOSA'09 Workshop, Washington D.C. (\$500)
- *Artist2 Network of Excellence Grant* to attend the Artist2 Summer School 2008 in Europe.
- *Onassis Foundation Financial Aid* to attend the 2008 Lectures in Computer Science, Greece. (\$700).
- *TCPP Travel Award* to present at IPDPS, Miami, 2008. (\$500).
- *NSF-Grace Hopper Scholarship* to attend the Grace Hopper Conference, Orlando, 2007. (\$250).
- *CRA-W Travel Support* to attend the CRA-W Grad Cohort Program, San Francisco, 2007. (\$500).

PUBLICATIONS

Book Chapters

1. Compiling SHIM: *Stephen A. Edwards, Nalini Vasudevan*. Synthesis of Embedded software - Frameworks and Methodologies for Correctness by Construction Software Design, Springer [To Appear].

Conferences

2. Compositional Deadlock Detection for Rendezvous Communication: *Baolin Shao, Nalini Vasudevan, Stephen A. Edwards*. International Conference on Embedded Systems (EMSOFT 2009), Grenoble, France. Acceptance Rate = 33/106 = 31%.
3. A Determinizing Compiler: *Nalini Vasudevan, Stephen A. Edwards*. ACM SIGPLAN Conference on Programming Languages Design and Implementation (PLDI 2009) - Fun Ideas and Thoughts (FIT),

Dublin, Ireland.

4. Buffer Sharing in CSP-like programs: *Nalini Vasudevan, Stephen A. Edwards*. 7th ACM-IEEE International Conference on Formal Methods and Models for Codesign (MEMOCODE 2009), Cambridge, USA.
5. Compile-Time Analysis and Specialization of Clocks in Concurrent Programs: *Nalini Vasudevan, Olivier Tardieu, Julian Dolby, Stephen A. Edwards*. International Conference on Compiler Construction (CC 2009), Lecture Notes in Computer Science, York, UK. Acceptance Rate: $141/532 = 26\%$.
6. Ceiling SHIM: Compiling Deterministic Concurrency to a Heterogeneous Multicore: *Nalini Vasudevan, Stephen A. Edwards*. 24th Annual ACM Symposium on Applied Computing (SAC 2009), Honolulu, Hawaii, USA. Acceptance Rate: $316/1084 = 29\%$.
7. Static Deadlock Detection for the SHIM Concurrent Language: *Nalini Vasudevan, Stephen A. Edwards*. 6th ACM-IEEE International Conference on Formal Methods and Models for Codesign (MEMOCODE 2008), Anaheim, USA.
8. A Deterministic Multi-Way Rendezvous Library for Haskell: *Nalini Vasudevan, Satnam Singh, Stephen A. Edwards*. 22nd IEEE International Parallel and Distributed Symposium (IPDPS 2008), Miami, Florida, USA. Acceptance Rate: $105/410 = 25\%$.
9. Programming Shared Memory Multiprocessors with Deterministic Message-Passing Concurrency: Compiling SHIM to Pthreads: *Stephen A. Edwards, Nalini Vasudevan, Olivier Tardieu*. Design Automation and Test in Europe (DATE 2008). Acceptance Rate: $198/839 = 23\%$.
10. Comparative Analysis of Neural Network Techniques Vs Statistical Methods in Capacity Planning: *Nalini Vasudevan, Gowri C. Parthasarathy*. 5th IEEE ACIS International Conference on Software Engineering Research, Management & Applications (SERA 2007).
11. Linux Cluster Possibilities in 3-D Photo Quality Imaging and Animation: *Arjun Jain, Himanshu Agrawal, Nalini Vasudevan*. World Academy of Science, Engineering and Technology (PWASET), Vol. 9, November 2005.

Workshops

12. Iterative Image Based Video Summarization by Node Segmentation: *Nalini Vasudevan, Arjun Jain, Himanshu Agrawal*. Information Technology and Sustainable Development, Saudi Computer Society (SCS), Riyadh, Saudi Arabia, March 2006.
13. A Connectionist Framework For Feature Based Speech Recognition Using Artificial Neural Networks: *Nalini Vasudevan, Anushruthi Rai, Arjun Jain*. 18th CSI Student Convention, Computer Society of India, Nov 2004.
 - ◇ Also won the **Best Project Award** at Iota 2004 (National Level Tech-Fest, India)

Technical Reports

14. Static Deadlock Detection in SHIM with an Automata Type Checking System: *Dave Aaron Smith, Nalini Vasudevan, Stephen A. Edwards*. Technical Report CUCS.053.08, Columbia University, Department of Computer Science, New York, USA, December 2008.
15. Analysis of Clocks in X10 Programs (Extended): *Nalini Vasudevan, Olivier Tardieu, Julian Dolby, Stephen A. Edwards*. Technical Report CUCS.052.08, Columbia University, Department of Computer Science, New York, USA, December 2008.
16. A JPEG Decoder in SHIM: *Nalini Vasudevan, Stephen A. Edwards*. Technical Report CUCS.48.06, Columbia University, Department of Computer Science, New York, USA, December 2006.

TALKS

Invited Talks

1. Static Deadlock Detection in Concurrent Programming Languages: At IBM Research, Watson Research Center, New York, May 2008.

2. Gambas: Gambas Almost Means BASic:
 - At LINUX ASIA/2006, the premier Open Source conference and exposition in Asia.
 - At RV College of Engineering, India, 2005.
 - At FOSS.IN/2004, India's largest Free and Open Source symposium.
3. Add More to Firefox: At FOSS.IN/2005, India's largest Free and Open Source symposium.

Conference Presentations

4. Buffer Sharing in CSP-like programs: 7th ACM-IEEE International Conference on Formal Methods and Models for Codesign (MEMOCODE 2009), Cambridge, USA.
5. A Determinizing Compiler: ACM SIGPLAN Conference on Programming Languages Design and Implementation (PLDI 2009) - Fun Ideas and Thoughts (FIT), Dublin, Ireland.
6. Compile-Time Analysis and Specialization of Clocks in Concurrent Programs: International Conference on Compiler Construction (CC 2009), York, UK.
7. Static Deadlock Detection for the SHIM Concurrent Language: 6th ACM-IEEE International Conference on Formal Methods and Models for Codesign (MEMOCODE 2008), Anaheim, USA.
8. A Deterministic Multi-Way Rendezvous Library for Haskell: 22nd IEEE International Parallel and Distributed Symposium (IPDPS 2008), Miami, Florida, USA.

Poster Presentations

9. Preventing Races and Deadlocks in Concurrent Programs: The SHIM Approach
 - Programming Languages, Operating Systems and Architecture Workshop, 2009.
 - CRA-W Grad Cohort, San Mateo, 2009.