

## Nalini Vasudevan

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CONTACT INFORMATION	400 W 119th Street, Apt 2S New York City, NY-10027.	Phone: +1-646-427-8232 E-mail: naliniv@cs.columbia.edu
INTERESTS	Programming Principles, Concurrency, Static Analysis	
EDUCATION	<ul style="list-style-type: none"><li>• PhD Candidate, Computer Science, <b>Columbia University</b>. (2007 - Present)<ul style="list-style-type: none"><li>◊ Advisor: Prof. <i>Stephen Edwards</i>. GPA: 4.1 (on a scale of 4)</li></ul></li><li>• Master of Science, Computer Science, <b>Columbia University</b>. (2006 - 2007)<ul style="list-style-type: none"><li>◊ GPA: 4.05 (on a scale of 4)</li></ul></li><li>• Bachelor of Engineering, Computer Science, <b>RV College of Engineering, Visveswariah Technological University (VTU)</b>, India. (2001 - 2005)<ul style="list-style-type: none"><li>◊ First Class with Distinction, Eight Semesters aggregate - 85 %. GPA: 4 (on a scale of 4)</li></ul></li></ul>	
WORK EXPERIENCE	<ul style="list-style-type: none"><li>• Graduate Research Assistant, <b>Columbia University</b>, under Prof. <i>Stephen Edwards</i>, Languages and Compilers Group. (Jan 2007 - Present)<ul style="list-style-type: none"><li>◊ Working on code generation and static verification techniques for concurrent languages</li></ul></li><li>• Research Intern, Alcatel-Lucent <b>Bell Laboratories</b>, under <i>Kedar Namjoshi</i>, Computing and Software Principles Group. (Jun 2009 - Aug 2009)<ul style="list-style-type: none"><li>◊ Worked on the design and verification of lock-free data structures</li></ul></li><li>• Research Co-op, <b>IBM T.J.Watson Research Center</b>, under <i>Vijay Saraswat</i> and <i>Olivier Tardieu</i>, Data Access and Language Integration Group. (Jun 2008 - Aug 2008)<ul style="list-style-type: none"><li>◊ Worked on the analysis of clocks in the X10 programming language</li></ul></li><li>• Research Intern, <b>Microsoft Research Limited (UK)</b>, under <i>Satnam Singh</i>, Programming, Principles and Tools Group. (Jun 2007 - Aug 2007)<ul style="list-style-type: none"><li>◊ Built a deterministic concurrent library in Haskell</li></ul></li><li>• Software Engineer, <b>Yahoo R&amp;D Center (India)</b> Pvt Ltd, Direct R&amp;D Unit. (July 2005 - Feb 2006)<ul style="list-style-type: none"><li>◊ Developed a heuristic based trigger management system that maps yahoo users' events to triggers</li></ul></li><li>• Research Intern, <b>Indian Institute of Science (IISc)</b>, under Prof. <i>Anurag Kumar</i>, Communication and Networking Lab, ECE Dept. (Jan 2005 - May 2005)<ul style="list-style-type: none"><li>◊ Worked on localization of ad-hoc sensor networks</li></ul></li></ul>	
TEACHING	<ul style="list-style-type: none"><li>• Instructor, <b>Programming Language (C)</b>, Columbia University. (Fall 2009)</li><li>• Course Manager and Instructor, <b>Columbia Video Network - Programming Language (C)</b>, Columbia University. (Fall 2009)</li><li>• Teaching Assistant, <b>Embedded System Design</b>, Columbia University. (Spring 2009)</li><li>• Teaching Assistant, <b>Programming Languages and Translators</b>, Columbia University. (Fall 2008)</li><li>• Teaching Assistant, <b>Advanced Programming</b>, Columbia University. (Summer 2008)</li><li>• Teaching Assistant, <b>Introduction to Computer Programming in C</b>, Columbia University. (Fall 2006)</li></ul>	

## 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

### Conferences

1. Compositional Deadlock Detection for Rendezvous Communication: *Baolin Shao, Nalini Vasudevan, Stephen A. Edwards*. International Conference on Embedded Systems (EMSOFT 2009), Grenoble, France. Acceptance Rate =  $33/106 = 31\%$ .
2. 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.
3. 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.

4. 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%.
5. Celling 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%.
6. 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.
7. 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%.
8. 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%.
9. 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).
10. 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

11. 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.
12. 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

13. 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.
14. 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.
15. 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.