

## Amlan Kusum

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EXPERIENCE      Research Assistant, University Of California Riverside      July 2012 - Till date  
Software Engineer, Cisco Video Technologies Ltd. Bangalore      February 2009 - August 2011  
Software Engineer (Contract), Motorola India Pvt Ltd. Bangalore      October 2008 - January 2009  
Software Engineer, Sasken Communication Ltd. Bangalore      September 2008 - February 2009

RESEARCH INTERESTS      Compiler & Language support for Self-Adaptive Systems, Parallel, Multi-core, Distributed, GPU programming; Performance tuning on Heterogeneous Systems

EDUCATION      **University Of California**, Riverside, California USA  
Ph.D. Candidate, Computer Science, March 2013 (expected graduation year: 2016 )  
Cumulative GPA: 3.7 /4.0  
**Advisor: Dr Rajiv Gupta & Dr Iulian Neamtiu**

**National Institute Of Technology**, Rourkela, Odisha India  
*Department of Computer Science & Engineering*  
Bachelor Of Technology, Computer Science, May , 2008  
Cumulative GPA: 8.64/10

COMPUTER SKILLS      *Languages: C++, JAVA, C, C#, Python, UML, Unix Shell Scripting & L<sup>A</sup>T<sub>E</sub>X*  
*Toolkit: Eclipse, Review Board, CM Synergy, Rational ClearCase & ClearQuest*  
*Agile Development: Worked with Scrum methodologies since April 2009*

PUBLICATIONS      *Efficient Processing of Large Graphs via Input Reduction*, Amlan Kusum, Keval Vora, Rajiv Gupta, Iulian Neamtiu, The 25th ACM Symposium on High-Performance Parallel and Distributed Computing. (To appear at HPDC'16)

*Safe and Flexible Adaptation via Alternate Data Structure Representations*, Amlan Kusum, Iulian Neamtiu, Rajiv Gupta, The 25th International Conference on Compiler Construction. (CC'2016)

*Self-Adaptive Graph Application via Alternate Data Structure representation*, Amlan Kusum, Iulian Neamtiu, Rajiv Gupta, The 5th International Workshop on Adaptive Self-tuning Computing Systems (co-located with HiPEAC 2015). (ADAPT '15)

PROJECTS:      A Generalized Performance Improvement Strategy Via Input Reduction      **Ongoing**  
DOCTORAL      

- Developing a generalized data-centric approach for constructing faster versions of out-of-core application

Fast Graph Analyses Via Connectivity-Aware Input Reduction.      **Spring '15 - Spring '16**  

- Developed a novel data-centric approach for constructing faster versions (precise, as well as approximate) of iterative graph algorithms from the original precise versions of iterative graph algorithms
- Evaluated on shared-memory implementation for 7 benchmark programs

A Generalized Self-Adaptation Strategy via Alternate Data Structure Representation. **Spring '14 - Winter '15**

- A novel approach that allows applications to adapt to current-running conditions (input characteristics, operations on data) by switching their data structures on-the-fly with little overhead and without the developer worrying about safety or specifying adaptation points
- The evaluation was done on a variety of benchmark application such as 6 graph applications, DBMS, Memcached and SpaceTyrant(an online game server)

Self-Adaptive Graph Application via Alternate Data Structure Representation. **Fall '13 - Winter '14**

- An approach that helps programmers transform regular, off-the-shelf graph applications into adaptive, more dependable applications where adaptations are performed via runtime selection from alternate data structure representations. The evaluation was done on real-world graphs and applications.

PROFESSIONAL  
EXPERIENCE

**Cisco Video Technologies(Previously NDS), Bangalore, India**

*Software Engineer*

**March, 2009 - August, 2011**

Software development of various development and testing tools.

- StreamViewer - A realtime MPEG/DVB stream analyzer and verifier.
  - Helps developer and tester to verify the integrity of the incoming data in the stream.
  - Supports DecTek and TechnoTrend devices.
  - Language: C#.Net.
  - Role: Developer.
- STB Profiler - A profiler or Set-top-box source code.
  - Profiles the source code for generating the call graph during execution.
  - Helps developer to detect bugs and crashes during integration.
  - Language: Java.
- STB Debugger - A debugger for Set-top-box source code.
  - Based on GDB for debugging the code which is running in the Set-top-box.
  - UI was developed using Eclipse plug-ins and provides IDE to developers.
  - Helps developers to view the value of variables, arrays, pointers and expansion of macro.
  - Language: Java and C.
- ReviewBoard - A code-review tool.
  - Helps developers to raise review request and review the code.
  - Customization done to raise code review request across multiple repositories.
  - Language: Python.

**Motorola Ltd, Bangalore, India**

*Software Engineer*

**October, 2008 - March, 2009**

Carried out various feature development and testing of Motodev Studio (an integrated development environment for mobile phone software)

HONORS & AWARDS

- PACT Student Travel Grant to present our labs' research at the PACT 2014.
- UCR Graduate Student Association Travel Grant to present our research at the PACT 2014.
- UCR Graduate Student Association Travel Grant to present our research at the ADAPT 2015.
- NDS Star Award 2011, Best Performance Award for STB Debugger project.
- Deans Distinguished Fellowship for PhD at the University of California, Riverside. 2011

TEACHING

**CS008** *Introduction to Computing*

**Winter, 2012**

**CS008** *Introduction to Computing*

**Spring, 2012**

SERVICE

*Reviewer/External Reviewer* : ICSME'14, ASPLOS'15, PLDI'15, ASPLOS'16