saha AT cs DOT ucr DOT edu
http://www.cs.ucr.edu/~saha
Ph: +1-951-534-8670 (C)

ARUN SAHA, Ph.D.

A result driven and thoughtful software engineer. Strong in design, problem solving, writing, reviewing, presentation, and training skills. Strong software development background in networking domain.

Education

2006	Ph. D., Department of Computer Science and Engineering University of California, Riverside
1999	Bachelor of Computer Science and Engineering Jadavpur University, India.

Work Experience

Jan 2009 -- present **Senior Research Software Engineer**, Fujitsu Network Communications, Sunnyvale

Requirements specification, modeling, functional specification, interfacing with hardware team, design, and development of Fujitsu Flashwave family of Ethernet switches.

Sep 2006 – Jan 2009 **Software Engineer**, Cisco, San Jose. (Gigabit Systems Business Unit)

Extensive research and development experience in Cisco Catalyst 4500 Metro Ethernet switch. Main focus was on layer-2 aspects: IEEE (802.1D, 802.1Q, 802.1ad) and MEF Services (E-LINE and E-LAN EVCs). Designed and developed the complete object model required for traffic classification, service multiplexing, bridging, and frame rewrite operations (Solved multiple potential scalability limitations, complex interactions of software and hardware.). Contributed partially in MAC security, TCAM management, Ethernet OAM Connectivity Fault Management (IEEE 802.1ag).

Responsibilities included functional specification, design, documentation, coding (C/C++ on Cisco's IOS), peer-reviewing design and code, interface to testing team, interacting and presenting work to members of other development groups/teams.

Apr 2002 – Jul 06 **Graduate Research Assistant,** Dept. of CSE, UCR

In the Wireless Localization problem, it is challenging to meet the security goals and accuracy goals *together*. We propose a solution to breakdown the localization procedure into two phases: first a MAC-assisted online phase making use of physical layer clock for fine grain time measurement, second an offline phase at application layer for cryptographic and geometric computations.

Oct 2001 – Mar 06 **Graduate Teaching Assistant,** Dept. of CSE, UCR

Primary teaching assistant for various upper- and lower-division courses including

- Computer Networks (CS-164),
- Introduction to Embedded Systems (CS 120B),
- Simulation and Modeling (CS 177),
- Data Structures and Algorithms in C++ (CS-14),

For large group of students, run the lab, deliver lab lecture, setting up homework and assignments, evaluation of answer scripts, lab projects. Maintain records for class such as

attendance, students' cumulative scores, and assignments. Manage student discipline issues in lab.

Jun 1999 – Aug 2001 **Senior Software Engineer,** Hughes Software Systems, India

Network Management solution for a DSL network: I designed, developed, and implemented the fault management module in the network management server which communicated to multiple element management servers over TCP/IP sockets for gathering alarm data to be consumed simultaneously by multiple browsers served by threads. I contributed in system integration, test plan preparation, and test automation scripts. I was responsible for mentoring few new engineers in the project.
In another prototype project, I did design and implementation of an Oracle based database and Java/CORBA server.

Publications

- Arun Saha and Mart Molle, Localization with witnesses, In Proceedings of 1st International Conference on New Technologies, Mobility and Security (NTMS 2007), Paris, France, May 2-4 2007.
- Arun Saha, Cross Layer Techniques to Secure Peer-to-Peer Protocols for Location, Adjacency, and Identity Verification, Ph.D. Thesis, University of California, Riverside, September 2006.
- Arun Saha and Mart Molle. Thinking outside the Box: Extending 802.1x Authentication to Remote "Splitter" Ports by Combining Physical and Data Link Layer Techniques. In Proceedings of 28th Annual IEEE International Conference on Local Computer Networks. Konigswinter, Germany, October 20 - 24, 2003.

Patents

Arun Saha, Runtime flow debugging a network device by examining packet counters at internal points (filed with USPTO)

Academic Review work

IEEE Sensor, Mesh and Ad Hoc Communications and Networks (SECON) 2008

IEEE International Conference on Communications (ICC) 2008

IEEE Consumer Communications and Networking Conference (CCNC) 2009

Software Skills

Language: C, C++, Java, Assembly, Perl, Python, Shell scripts, VHDL

Operating Systems: Linux, Windows (2000/XP), Cisco IOS

Tools: Matlab, CORBA, SNMP, Clearcase, Subversion, HP-Openview, CSIM, Ixia

Graduate Courses

Data Mining Techniques, Design and Analysis of Algorithms, Ad-hoc networks, Theory of Computation, Advanced Modeling and Simulation, Advanced Computer Networks, Advanced Database management systems, Advanced Computer Architecture, Unix System Administration.

Achievements

2007	Individual Contribution Award, Cisco for extra efforts in meeting the schedule
2007	Individual Contribution Award, Cisco for actively writing great internal wikipages for documenting and spreading knowledge
2001-04	Dean's Fellowship for graduate studies at UC, Riverside
1993	Qualified the **REGIONAL MATHEMATICS OLYMPIAD**, India
1993	Certificate of Merit, Top twenty candidate in statewide mathematics test
1990-95	**Government of India MERIT SCHOLAR**. This scholarship was awarded annually only to very few students (approximately 50) from entire India. Selection was done by multiple levels of nation-wide elimination tests. The scholars were admitted to leading residential schools and Government endorsed all their expenses throughout the period