

# Suman Sarkar

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## Education

- Ph.D., Computer Science, University of California, Davis
  - December 2005 – June 2008
- M.S., Computer Science, University of California, Davis (GPA: 3.95/4.00)
  - September 2004 – December 2005
- B.E. (Bachelor of Engineering), Electronics & Telecommunication Engineering, Bengal Engineering and Science University, India, June 2001 (Percentage: 81.31)

## Skills

- Operating Systems/Firmware: Linux/Unix, FreeBSD, OpenWrt, Cisco IOS
- Programming: C, C++, Shell script, Perl, VHDL, Verilog, 80x86 assembly
- Tools: CPLEX, MATLAB, ModelSim, Pspice, Synplify, Quartus
- Device: FPGA, DSP, ARM Processor
- **Thorough understanding of Layer-2 and Layer-3 network protocols.**
- **Experience in Network Programming, Algorithms, Modeling, Optimizations, and Linear Programming.**

## Experience/Research

- **Software Developer, Cisco Systems, Inc., USA, July 2008 - Present**
- **Intern, Nokia Siemens Networks, USA, June 2007 – March 2008**
  - ❖ **Research and Technology Platform – Networking Technology Group**
    - Built a fully reconfigurable ad-hoc wireless mesh prototype for deployment in advanced and new growth markets.
    - Built a prototype for mesh layer-2 (connectivity) and layer-3 (routing) paradigms.
  - ❖ **Patents (on behalf of Nokia Siemens Networks)**
    - “An adaptive Mechanism for Dynamic Reconfiguration of Wireless Mesh to Conserve Power,” Sudhir Dixit and Suman Sarkar [Filed on October, 2007, pending].
    - “Cascaded Source-driven Node Wake-up and Routing in Wireless Mesh,” Sudhir Dixit and Suman Sarkar [Filed on October, 2007, pending].
    - “A method and Apparatus to Minimize Power/Battery Consumption in Wireless Mesh,” Suman Sarkar, et al. [Filed on November, 2007, pending].
- **Research Assistant, Networks Lab., Computer Science, UC Davis, June 2005 – Present**
  - ❖ **Research on Hybrid Wireless-Optical Broadband Access Network (WOBAN)**
    - A. **Design and Analysis of a WOBAN**
      - Investigated the characteristics of a Mixed Integer Programming (MIP) model for optimum placements of Base Stations (BS) and ONUs/OLTs in a WOBAN.
      - Explored a sophisticated technique, called Lagrangean Relaxation, for analytical tractability of the model.

**B. Network Connectivity of a WOBAN**

- Proposed a routing algorithm for mesh network in WOBAN with delay awareness.
- Modeled each wireless router in the mesh as a Markovian queue and compared with industry's current solutions.

**C. Fault Tolerance and Restoration in WOBAN**

- Explored the fault tolerance and risk awareness of a WOBAN.

**❖ Other Research Topics**

- A. Resource Allocation in Optical Access Network, viz., Passive Optical Network (PON)
- B. Concentric Two-Ring Network proposal for Africa

➤ **Research Fellow**, ETRI and Information and Communication University, South Korea, **June 2005 – September 2005**

**❖ Research on Hybrid Wireless-Optical Broadband Access Network**

- A. Formulated mesh network setup problem with Simulated Annealing.

➤ **Teaching Assistant**, Computer Science, UC Davis, **September 2004 – June 2005**

- ❖ Course: Design and Analysis of Algorithms

➤ **Research Engineer**, Centre for Distributed Computing, Computer Science and Engineering, Jadavpur University, India, **October 2002 – August 2004**

- ❖ Designed a real-time testbed for secured voice communication over P2P wireless link.

➤ **Electronics Engineer**, Arant Communications, Inc., India, **July 2001 – August 2002**

- ❖ Coded SONET/SDH core and tested/verified chips.

**Honors and Awards**

- UC Davis Block Grant Fellowship, January – March 2007
- UC Davis Summer Graduate Student Researcher Award, July – September 2006
- UC Davis Non-Resident Tuition Fellowship, September 2004 – Present
- Merit Certificate and Scholarship for School Leaving Examinations, Govt. of India, 1995 (Grade 10: Ranked 19<sup>th</sup> out of over 5,00,000 examinees) and 1997 (Grade 12: Ranked 30<sup>th</sup> out of over 3,50,000 examinees)

**Publications (selected one): Authored 20+ research papers in IEEE Conferences/Journals.**

1. Suman Sarkar, Sudhir Dixit, and Biswanath Mukherjee, "**Hybrid Wireless-Optical Broadband Access Network (WOBAN): A Review of Relevant Challenges,**" *IEEE/OSA Journal of Lightwave Technology, Special Issue on Convergence of Optical Wireless Access Networks*, vol. 25, no. 11, pp. 3329-3340, November 2007. [Invited Paper]
2. See <http://networks.cs.ucdavis.edu/~sarkar/#publication> for details.