

DEVESH AGRAWAL

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- Objective* A challenging software engineering position in a fast paced company.
- Education* **MS in Computer Science (GPA: 3.97)** *Completed Feb, 2009*
University of Massachusetts, Amherst, MA
Sensor Systems Research Group.
- BTech and MTech in Computer Science (GPA: 8.74)** *2001 - 2006*
Indian Institute of Technology Madras, Chennai, India
- Work Experience* **Research Assistant** *Fall 2006-Present*
Sensor Systems Research Group, UMass Amherst
Have mainly been working on the projects Hop, LA-Tree, and StonesDB.
- Teaching Assistant** *Spring 2007*
Computer Science Department, UMass Amherst
Graded programming assignments and exams for the undergraduate OS course.
- Internship at Deutsche Telekom Research Lab** *Summer 2006*
Deutsche Telekom Research Lab, Berlin, Germany
Implemented and evaluated the parallel download protocols TCP-Paris and TCP-Rome in the Linux Kernel.
- Teaching Assistant** *Spring 2005*
Computer Science Department, IIT Madras
Designed and graded programming assignments based on GeekOS educational kernel.
- Projects* **Hop [NSDI'09]** *Spring 2008 - Present*
A hop-by-hop, block based wireless transport protocol that performs more than an order of magnitude better over state of the art TCP across all scenarios (Userspace daemon in **C and Ruby**). Available at <http://hop.cs.umass.edu>.
- LA-Tree [VLDB'09]** *Spring 2008 - Spring 2009*
Designed an adaptive flash-optimized tree index structure that achieves huge gains over state of the art and scales across all workloads (**C++ and Ruby**).
- StonesDB** *Spring 2007*
Memory adaptive storage and indexing substrate for sensor databases (**C++ and Ruby**).
- Water monitoring meraki mesh network** *Fall 2007*
Designed a mesh network spanning 2 miles using hacked meraki and open-wrt nodes which ran custom software to provide connectivity to a water quality measurement sensor network (**C++ and Ruby**).
- Internet Route Failure Monitoring** *Fall 2006*
Large scale Internet route failure study from 150 Planetlab hosts to more than 300 thousand IP prefixes to study the efficacy of detour routing (**Ruby**).

Parallel Downloading TCP

Summer 2006

Implemented parallel download variants TCP-Paris and TCP-Rome into the Linux networking stack (**C Kernel programming**).

Meghadoot [ICON'06]

2005

Multihop wireless mesh network for rural connectivity implemented into the Linux networking stack (**C Kernel programming**). Available at <http://meghadoot.sf.net>.

Prodebug

2004

A bootable protected mode debugger for use as an educational kernel. Available at <http://prodebug.sf.net>

Skills

Languages: C, C++, Ruby (very fluent); Java (fluent); Perl, Verilog, NesC, and Matlab (familiar)

Systems Programming: Linux Kernel Programming and Unix Systems and Network Programming

Graduate Coursework

Distributed Systems, Modelling and Analysis of Systems, Wireless Sensor Networks
Computer Architecture, Databases, Networks, Computer Architecture
Advanced Algorithms, Theory of Computation, Artificial Intelligence

Publications

D. Agrawal, D. Ganesan, R. Sitaraman, Y. Diao, S. Singh 2009. **Lazy-Adaptive Tree: An Optimized Index Structure for Flash Devices**. Conference on Very Large Databases (VLDB), 2009.

M. Li, D. Agrawal, D. Ganesan, A. Venkatramani 2009. **Block-switched Networks: A New Paradigm for Wireless Transport**. Usenix Conference on Network Systems Design and Implementation (NSDI), 2009.

V. Ramana, D. Agrawal, C.S.R Murthy 2006. **Design and Prototyping of Meghadoot – A hybrid wireless network architecture**. Best paper award in the International Conference on Networks (ICON), 2006.

D. Agrawal, T.B. Reddy, C.S.R Murthy 2006. **Robust Demand Driven Video Multicasting for Ad hoc Wireless Networks**. International Conference on Broadband Networks (Broadnets), 2006.

Professional Talks

Lazy-Adaptive Tree: An Optimized Index Structure for Flash Devices
VLDB Conference 2009, Lyon, France and New England Database Day 2009, Boston.

Block-Switched Networks: A New Paradigm for Wireless Transport
August 2009, University of Dusseldorf, Germany.

StonesDB: A Memory Adaptive Storage and Indexing Substrate for Sensor Networks
November 2007, BBN Technologies, Boston.

Visa

Currently hold F1 Visa. Require H1B sponsorship to work.