Ming Li
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Research Interests

- My research interests are broadly in the areas of networking and distributed systems. I have worked on topics including transport and routing problems in wireless mesh networks, data management in both micro and macro sensor networks, peer-to-peer overlay and storage systems, distributed publish-subscribe systems.

Education

- **University of Massachusetts Amherst** — Amherst, MA
  Ph.D Candidate in Computer Science — *Jan 2007 - Present*
  - Thesis: Data Management and Network Design in Micro and Macro Sensor Networks
  - Committee: Deepak Ganesan, Arun Venkataramani, Prashant Shenoy, Jim Kurose, Lixin Gao
- **University of Massachusetts Amherst** — Amherst, MA
  Master of Science in Computer Science — *Sep 2004 - Dec 2006*
  - G.P.A: 3.9/4.0
  - Passed Portfolio with Distinction (Awarded to 17 students since 1995)
- **Tsinghua University** — Beijing, China
  Master of Science in Computer Science — *Sep 2001 - Jul 2004*
  - Thesis: Global-Scale Persistent Object Storage
- **Harbin Institute of Technology** — Harbin, China
  Bachelor of Science in Computer Science — *Sep 1997 - Jul 2001*
  - Excellent Graduate in 2001, Harbin Institute of Technology

Research Experience

- **University of Massachusetts** — Amherst, MA
  Research Assistant — *Feb 2005 - Present*
  - With Prof. Deepak Ganesan, Prof. Arun Venkataramani, and Prof. Prashant Shenoy
  - Have focused on sensor networks and wireless mesh networks. Worked on projects including:
    - PRESTO, a feedback-driven data management system in sensor networks. Deployed on a sensor network testbed comprising 30 TelosB Motes.
    - MUDS, a utility-driven multi-user data sharing architecture in macro sensor networks. Deployed on a real radar sensor network.
    - HOP, a hop-by-hop bulk transfer protocol for wireless mesh networks. Deployed on a 20-node wireless mesh testbed.
- **IBM Research, Watson** — Hawthorne, NY
  Research Intern — *Jun 2009 - Sep 2009*
  - With Dr. Hui Lei, Dr. Fan Ye, Dr. Minkyong Kim.
  - Worked on a content-based publish-subscribe system in cloud computing environment
- **Thomson Research and Development** — Paris, France
  Research Intern — *Oct 2006 - Jan 2007*
  - With Dr. Henrik Lundgren, Dr. Christophe Diot.
  - Worked on routing protocols in wireless mesh networks.
    - Designed and implemented a MAC-aware routing protocol in wireless mesh networks.
    - Customized the Madwifi wireless driver and the Click modular router.

    - Built a 15-node wireless mesh testbed in Thomson Research building and deployed the routing protocl.

- **Microsoft Research Asia** Beijing, China
  Part-time Research Intern *Jun 2003 - Jun 2004*
  - With Dr. Zheng Zhang
  - Worked on overlay and routing algorithms in peer-to-peer networks.
    - Designed and implemented a low-overhead hybrid overlay protocol that exploits the small world structure in unstructured peer-to-peer networks.
    - Designed and implemented the leafset component for the XRing overlay protocol.

- **Tsinghua University** Beijing, China
  Research Assistant *Sep 2001 - May 2004*
  - With Prof. Dongsheng Wang, Prof. Weimin Zheng
  - Worked on overlay and storage problems in peer-to-peer networks and parallel computing in high-performance cluster.
    - Designed and implemented SmartBoa, a heterogeneous overlay protocol in peer-to-peer networks.
    - Designed and implemented ONSP, a cluster-based simulation tool for large scale peer-to-peer network simulations.
    - Designed and implemented Granary, a global-scale persistent object storage system on top of peer-to-peer overlay. Deployed Granary on China National Grid, the largest wide-area research network in china, which comprises hundreds of nodes across China.
    - Deployed the MM5 weather forecast system on high-performance clusters.

Teaching Experience

- **University of Massachusetts** Amherst, MA
  Teaching Assistant *Sep 2008 - Dec 2008*
  - CS653: Advanced Computer Networks
    - 3-credit graduate-level course
    - Responsibilities including teaching, grading, and answering question during office hours
    - Gave lectures on wireless mesh networks.

- **University of Massachusetts** Amherst, MA
  Teaching Assistant *Sep 2004 - Dec 2004*
  - CS105: Computer Literature
    - 3-credit undergraduate-level course
    - Responsibilities including organizing labs, grading, and answering question during office hours

Publications

NSDI'09: Block-switched Networks: A New Paradigm for Wireless Transport, *Ming Li, Devesh Agrawal, Deepak Ganesan, and Arun Venkataramani*, ACM/USENIX NSDI 2009, Boston (to appear).

ToN'09: PRESTO: Feedback-driven Data Management in Sensor Networks, *Ming Li, Deepak Ganesan and Prashant Shenoy*, IEEE/ACM Transactions on Networking, 2009 (to appear).

Sensys'07: Multi-user Data Sharing in Radar Sensor Networks, *Ming Li, Tingxin Yan, Deepak Ganesan, Eric Lyons, Prashant Shenoy, Arun Venkataramani, Michael Zink*, ACM Sensys 2007, Sydney.

NSDI'06: PRESTO: Feedback-driven Data Management in Sensor Networks, *Ming Li, Deepak Ganesan and Prashant Shenoy*, ACM/USENIX NSDI 2006, San Jose.

HotOS'05: PRESTO: A Predictive Storage Architecture for Sensor Networks, *Peter Desnoyers, Deepak Ganesan, Huan Li, Ming Li and Prashant Shenoy*, HotOS 2005, Santa Fe

ICPP'05: PeerWindow: An Efficient, Heterogeneous, and Autonomic Node Collection Protocol *Jinfeng Hu, Ming Li, Weimin Zheng*, ICPP 2005, Norway

GCC'04: Gemini: Probabilistic Routing Algorithm in Structured P2P Overlay *Ming Li, Jinfeng Hu, Dongsheng Wang, Weimin Zheng* GCC 2004, Wuhan, China

IPTPS'04: SmartBoa: Constructing p2p Overlay Network in the Heterogeneous Internet Using Irregular Routing Tables *Jinfeng Hu, Ming Li, Weimin Zheng, Dongsheng Wang*, IPTPS 2004, San Diego

PDPTA'04: ONSP: Parallel Overlay Network Simulation Platform *Yinghui Wu, Ming Li, Weimin Zheng* The 2004 International Conference on Parallel and Distributed Processing Technique and Applications (PDPTA 2004), Las Vegas.

Honours and Awards

Nominated for Graduate School Fellowship, 2007, University of Massachusetts Amherst

Passed Portofolio with Distinction, 2006, University of Massachusetts Amherst(Awarded to 17 students since 1995)

Guanghua Fellowship, First grade, 2003, Tsinghua University

Excellent Graduate, 2001, Harbin Institute of Technology

People's Fellowship, First grade, 2000, Harbin Institute of Technology

People's Fellowship, Second grade, 1999, Harbin Institute of Technology

Technical Proficiency

- **System software development**
  - Unix/Linux System Programming
    - Experience with networking and multi-threading programming.
  - Madwifi Wireless Driver
    - Familiar with the source code. Hacked Madwifi-0.9 to support WMM in Adhoc-demo mode and to expose additional link layer information to upper layer.
  - Click Modular Router
    - Experience with Click modular design and implementation.
  - Tinyos
    - Experience with programming Mica2, MicaZ, TelosB.
  - Emstar
    - Experience with programming linux-based sensor platforms including Stargate node.
  - Wireless Mesh Testbed Building
    - Experience with wireless mesh testbed building. Built a 20-node testbed in Computer Science Building UMass, and a 15-node testbed in Thomson Research Building.
- **Programming Languages**
  - C/C++, NesC, Java, Visual C++, Visual Basic, Perl, Ruby, Shell

Professional Activities

- Reviewer: INFOCOM'10, INFOCOM'09, SENSYS'08, MC2R'08, TMC'08, WTS'08, IPSN'05, INFOCOM'06, IPSN'06

References

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