

Ajay Mahimkar

The University of Texas at Austin, Department of Computer Sciences,
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Research Interests

- My research interests span several areas of systems and networks, including network design & management, security, intrusion detection, and diagnosis.

Education

- Ph.D. in Computer Sciences (expected May 2010)
University of Texas at Austin, TX, USA.
Advisor: Yin Zhang
Dissertation Area: Large-Scale Network Troubleshooting
- M.S.E. in Electrical & Computer Engineering (08/03 - 12/05)
University of Texas at Austin, TX, USA.
Advisors: Harrick M. Vin, Yin Zhang and Vitaly Shmatikov
Thesis: DYNAMO: DYnamic Network-based Attack Mitigation Operations
- B.E. in Computer Science (06/98 - 05/02)
University of Mumbai, India.
Advisor: R. K. Shyamasundar
Thesis: Design and Implementation of Software Defined Radio

Publications

1. **Ajay Mahimkar**, Zihui Ge, Aman Shaikh, Jia Wang, Jennifer Yates, Yin Zhang and Qi Zhao, “Towards Automated Performance Diagnosis in a Large IPTV Network”, *Proc. ACM SIGCOMM*, August 2009.
2. **Ajay Mahimkar**, Jennifer Yates, Yin Zhang, Aman Shaikh, Jia Wang, Zihui Ge and Cheng Tien Ee, “Troubleshooting Chronic Conditions in Large IP Networks”, *Proc. 4th ACM International Conference on emerging Networking EXperiments and Technologies (CoNEXT)*, December 2008.
3. **Ajay Mahimkar**, Jasraj Dange, Vitaly Shmatikov, Harrick Vin and Yin Zhang, “dFence: Transparent Network-based Denial of Service Mitigation”, *Proc. 4th USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, April 2007.
4. Ravi Kokku, Upendra Shevade, Nishit Shah, **Ajay Mahimkar**, Taewon Cho and Harrick Vin, “Processor Scheduler for Multi-Service Routers”, *Proc. 27th IEEE Real-time Systems Symposium (RTSS)*, December 2006.
5. **Ajay Mahimkar** and Vitaly Shmatikov, “Game-Based Analysis of Denial-of-Service Prevention Protocols”, *Proc. 18th IEEE Computer Security Foundations Workshop (CSFW)*, June 2005.

Work and Internship Experience

- June 2009 - August 2009 Summer Intern, **Microsoft Research**, Redmond, WA
Mentors: Kashi Vishwanath, Sharad Agarwal and Albert Greenberg
Projects: Performance Analysis in Data Center Networks

- Sept 2008 - May 2009 Graduate Research Assistant, Computer Sciences, **UT-Austin**
Projects: 1. Mining IPTV User Behavior and Troubleshooting Service Disruptions
2. Network Anomaly Detection and root-cause analysis
- June 2008 - Aug 2008 Summer Intern, **AT&T Labs - Research**, Florham Park, NJ
Mentors: Jennifer Yates, Aman Shaikh, Zihui Ge and Jia Wang
Projects: 1. Network Behavior Change Analysis using Correlations
2. Troubleshooting IPTV Service Disruptions
- Sept 2007 - May 2008 Graduate Research Assistant, Computer Sciences, **UT-Austin**
Projects: Statistical Correlation Rule Mining for Troubleshooting Chronic Network Conditions
- June 2007 - Aug 2007 Summer Intern, **AT&T Labs - Research**, Florham Park, NJ
Mentors: Jennifer Yates, Aman Shaikh and Jia Wang
Projects: Statistical Correlation Rule Mining for Troubleshooting Chronic Network Conditions
- Sept 2006 - May 2007 Graduate Research Assistant, Computer Sciences, **UT-Austin**
Projects: Scalable Correlation Analysis for Network Troubleshooting
- June 2006 - Aug 2006 Summer Intern, **AT&T Labs - Research**, Florham Park, NJ
Mentors: Jennifer Yates and Albert Greenberg
Projects: Scalable Correlation Analysis for Network Troubleshooting
- Aug 2003 - May 2006 Graduate Research Assistant, Computer Sciences, **UT-Austin**
Advisors: Harrick Vin and Yin Zhang
Projects: 1. Network-based Denial-of-Service Mitigation System
2. Game-based Analysis of DoS Prevention Protocols
3. Resource Allocation in packet-processing systems
4. Adaptive Scheduling in Hyper-Threading enabled processors
5. Trace Generation for high bandwidth network links
- July 2002 - July 2003 Research Assistant, **Tata Institute of Fundamental Research**, India
Advisor: R. K. Shyamasundar
Funding : Government of India
Projects: 1. Solving Hidden Terminal Problem in Wireless Networks
2. Energy Efficient Routing in Wireless Networks
- June 2001 - June 2002 Project Intern, **Tata Institute of Fundamental Research**, India
Advisor: R. K. Shyamasundar
Projects: Design and Evaluation of Multi-mode, Multi-band Software Defined Radio

Grants and Awards

- Travel Grant for NSDI (2006, 2007, 2008)
- Tata Doctoral Fellowship (2003-2005) and Undergraduate Scholarship (1999-2002)
- Certificate Awards from University for securing 1st rank during 2nd & 3rd years.

Talks

1. “Inferring Communication Patterns in Data Centers”, End of Internship Talk, Microsoft Research, Redmond, WA (September 2009).
2. “Towards Automated Performance Diagnosis in a Large IPTV Network”, ACM Sigcomm 2009, Barcelona, Spain (August 2009).

3. “Troubleshooting Chronic Conditions in Large IP Networks”, ACM CoNEXT 2008, Madrid, Spain (December 2008).
4. “Troubleshooting Chronic Conditions in Large IP Networks”, AT&T Labs 2008 University Collaborations Symposium, NJ (August 2008).
5. “Network-Wide Information Correlation and Exploration (NICE): Framework, Applications and Experience”, Tata Research Development and Design Center, Pune, India (February 2008).
6. “Network-Wide Information Correlation and Exploration (NICE): Framework, Applications and Experience”, AT&T Labs 2007 University Collaborations Symposium, NJ (August 2007).
7. “dFence: Transparent Network-based Denial of Service Mitigation”, NSDI 2007, Cambridge, MA (April 2007).
8. “Transparent Network-based DoS Mitigation”, Poster, EdgeNet 2006, Microsoft Research, WA (June 2006).
9. “Game-Based Analysis of Denial-of-Service Prevention Protocols”, Paper, IEEE CSFW, 2005, France (June 2005).
10. “Trace Generation for High bandwidth network links”, Presentation, 2003, Intel Labs, Portland, OR (December 2003).

Professional Activities

- Reviewer for DSN (2006), CCS (2006), Infocom (2006), ICDCS (2006), ACM SAC Track on Computer Security (2006), WWW Security, Privacy and Ethics track (2006), CSFW (2006), ACNS (2006)

Computer Skills

- *Languages* : C, C++, Java, Perl, Matlab
- *Operating Systems* : Linux, UNIX, Windows
- *Networking* : TCP/IP, Socket Programming, Intel IXP Network Processors

References

Prof. Yin Zhang
 Laboratory for Advanced Systems Research
 Department of Computer Sciences
 Univ. of Texas at Austin, TX, USA
 Email: yzhang@cs.utexas.edu

Dr. Jennifer Yates
 Executive Director - Network Management Dept
 AT&T Labs - Research
 Florham Park, NJ, USA
 Email: jyates@research.att.com

Dr. Harrick Vin
 Head, Systems Research Labs
 Tata Research Development and Design Centre
 Pune, India
 Email: harrick.vin@tcs.com