

Himabindu Pucha

PERSONAL INFORMATION

School of Computer Science
Carnegie Mellon University
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Gender: Female
Visa: F-1

RESEARCH INTERESTS

Systems and networking: Distributed systems, overlay and p2p networks, Internet routing and measurement, mobile computing.

EXPERIENCE

Carnegie Mellon University, Pittsburgh, Pennsylvania, USA

Postdoctoral Research Associate, Department of Computer Science, January 2008 -

- Adviser: David. G. Andersen

EDUCATION

Purdue University, West Lafayette, Indiana, USA

Ph.D., Electrical and Computer Engineering, December 2007

- Dissertation Topic: "Harnessing Heterogeneous Resources For Improving Internet Data Transfer"
- Adviser: Y. Charlie Hu

M.S., Electrical and Computer Engineering, December 2003

- Dissertation Topic: "Performance Impact of Communication Models on Routing Protocols in Mobile Ad Hoc Networks"
- Adviser: Y. Charlie Hu

University of Bombay, Mumbai, Maharashtra, India

B.E. (With Honors), Electronics Engineering, August 2001

HONORS AND AWARDS

First Prize, ACM Student Research Competition at Grace Hopper Conference 2007
Google Anita Borg Memorial Fellowship (award rate: 5% of US applicants) 2006
Finalist, Intel Foundation Ph.D. Fellowship 2006
Purdue University Violet B. Haas Award 2005
IEEE and AT&T Student Enterprise Award 2001
Sir Ratan Tata Grant for Higher Education 1999, 2000

Travel Awards

- ACM SOSP Travel Scholarship 2007
- ACM Student Research Competition Travel Award 2007
- Grace Hopper Conference Travel Award 2007
- USENIX NSDI Travel Award 2007
- ACM IMC Travel Award 2006
- ACM SIGCOMM Travel Award 2005

ACADEMIC EXPERIENCE

Purdue University, West Lafayette, Indiana, USA

Graduate Student

January 2002 - January 2008

Includes Ph.D. research, Ph.D. and Masters level coursework and Masters thesis.

Carnegie Mellon University, Pittsburgh, Pennsylvania, USA

Visiting Research Scholar

January 2007 - September 2007

Worked on the Data Oriented Transfer Project.

TEACHING
EXPERIENCE

ECE 469, Operating Systems Engineering

Teaching Assistant

January 2005 - May 2005

Responsible for office hours, grading projects and exams, designing and evaluating operating system implementation projects.

ENGR 106, Introduction to Computer Tools for Engineers

Teaching Assistant

August 2002 - December 2002

Responsible for office hours, exam and homework grading, labs and weekly lectures for over 100 students.

PROFESSIONAL
EXPERIENCE

Intel Research Labs, Pittsburgh, Pennsylvania, USA

Summer Researcher

June 2007 - September 2007

Worked on dsync, a system for autonomous adaptive data transfer.

Intel Research Labs, Pittsburgh, Pennsylvania, USA

Summer Researcher

June 2006 - September 2006

Worked on similarity enhanced transfer, a new method for high throughput data transfer.

USDA National Soil Erosion Research Laboratory, West Lafayette, Indiana, USA

Research Programmer

May 2002 - August 2002

CONFERENCE AND
WORKSHOP
PUBLICATIONS

1. "A Measurement Study of Internet Delay Asymmetry", Abhinav Pathak, Himabindu Pucha, Ying Zhang, Y. Charlie Hu and Z. Morley Mao. In Proceedings of the 9th Passive and Active Measurement Conference (**PAM**), Cleveland, USA, April 29-30, 2008. (32%)
2. "Studying Wireless Routing Link Dynamics", Saumitra M. Das, Himabindu Pucha, Konstantina Papagiannaki and Y. Charlie Hu. In Proceedings of the 7th ACM SIGCOMM/USENIX Internet Measurement Conference (**IMC**), San Diego, USA, October 23-26, 2007. (28.7%)
3. "Overlay Node Placement: Analysis, Algorithms and Impact on Applications", Sabyasachi Roy, Himabindu Pucha, Zheng Zhang, Y. Charlie Hu and Lili Qiu. In Proceedings of the 26th IEEE International Conference on Distributed Computing Systems (**ICDCS**), Toronto, Canada, June 25-29, 2007. (13.4%)
4. "Understanding Network Delay Changes Caused by Routing Events", Himabindu Pucha, Ying Zhang, Z. Morley Mao and Y. Charlie Hu. In Proceedings of the 10th ACM International Conference on Measurement and Modeling of Computer Systems (**SIGMETRICS**), San Diego, USA, June 12-16, 2007. (17%)
5. "Exploiting Similarity for Multi-Source Downloads using File Handprints", Himabindu Pucha, David G. Andersen, and Michael Kaminsky. In Proceedings of the 4th USENIX Symposium on Networked Systems Design and Implementation (**NSDI**), Cambridge, USA, April 11-13, 2007. (23.8%)
6. "On the Impact of Research Network Based Testbeds on Wide-area Experiments", Himabindu Pucha, Y. Charlie Hu, and Z. Morley Mao. In Proceedings of the 6th ACM SIGCOMM/USENIX Internet Measurement Conference (**IMC**), Rio de Janeiro, Brazil, October 25-27, 2006. (12%)
7. "Ekta+: Opportunistic Multiplexing in a Wireless DHT", Himabindu Pucha, Saumitra M. Das and Y. Charlie Hu. Short paper in Proceedings of the 1st ACM MobiCom International Workshop on Decentralized Resource Sharing in Mobile Computing and Networking (MobiShare), Los Angeles, USA, September 29, 2006.
8. "Take One Get One Free: Leveraging P2P Networks for Content Promotion", Himabindu Pucha, Sabyasachi Roy and Y. Charlie Hu. In Proceedings of the 9th INFOCOM Global Internet Symposium (**GI**), Barcelona, Spain, April 28-29, 2006. (33%)
9. "Symmetrical-Fairness in Infrastructure Access in Multihop Ad Hoc Networks", Saumitra M. Das, Himabindu Pucha and Y. Charlie Hu. In Proceedings of the 25th International Conference on Distributed Computing Systems (**ICDCS**), Columbus, USA, June 6-9, 2005. (13.8%)

10. "On Optimal TTL Sequence-based Route Discovery in MANETs", Dimitrios Koutsonikolas, Saumitra M. Das, Himabindu Pucha and Y. Charlie Hu. In Proceedings of the 2nd ICDCS International Workshop on Wireless Ad Hoc Networking (WWAN), Columbus, USA, June 6-9, 2005. (31%)
11. "MicroRouting: A Scalable and Robust Communication Paradigm for Sparse Ad Hoc Networks", Saumitra M. Das, Himabindu Pucha and Y. Charlie Hu. In Proceedings of the 5th IPDPS International Workshop on Algorithms for Wireless, Mobile, Ad Hoc and Sensor Networks (WMAN), Denver, USA, April 4-8, 2005. (21.6%)
12. "Performance Comparison of Scalable Location Services for Geographic Ad Hoc Routing", Saumitra M. Das, Himabindu Pucha and Y. Charlie Hu. In Proceedings of 25th IEEE Conference on Computer Communications (**INFOCOM**), Miami, USA, March 13-17, 2005. (17%)
13. "Ekta: An Efficient DHT Substrate for Distributed Applications in Mobile Ad Hoc Networks", Himabindu Pucha, Saumitra M. Das and Y. Charlie Hu. In Proceedings of the 6th IEEE Workshop on Mobile Computing Systems and Applications (**HotMobile [WMCSA]**), English Lake District, UK, December 2-3, 2004. (25%)
14. "The Performance Impact of Traffic Patterns on Routing Protocols in Mobile Ad Hoc Networks", Himabindu Pucha, Saumitra M. Das and Y. Charlie Hu. In Proceedings of the 7th ACM International Symposium on Modeling, Analysis and Simulation of Wireless and Mobile Systems (**MSWIM**), Venice, Italy, October 4-6, 2004. (27%)
15. "Exploiting the Synergy between Peer-to-Peer and Mobile Ad Hoc Networks", Y. Charlie Hu, Saumitra M. Das and Himabindu Pucha. In Proceedings of the 9th USENIX Workshop on Hot Topics in Operating Systems (**HotOS**), Kauai, USA, May 18-21, 2003. (13%)
16. "DynCoDe: Dynamic Content Delivery for Internet Services", Kalyan Pucha, Himabindu Pucha and Saumitra M. Das. In Proceedings of the 11th Annual National Conference on Communications (NCC), Kharagpur, India, January 28-30, 2005. Shorter version appeared as " DynCoDe : An Architecture for Transparent Dynamic Content Delivery", In Proceedings of the 12th International World Wide Web Conference (**WWW**), Budapest, Hungary, May 20-24, 2003.

JOURNAL
PUBLICATIONS

1. "Distributed Hashing for Scalable Multicast in Wireless Ad Hoc Networks", Saumitra M. Das, Himabindu Pucha and Y. Charlie Hu. In IEEE Transactions on Parallel and Distributed Systems (TPDS), Vol 19(3), March 2008.
2. "On the Scalability of Location Services for Geographic Wireless Ad Hoc Routing", Saumitra M. Das, Himabindu Pucha and Y. Charlie Hu. In Elsevier Computer Networks Journal (COMNET), Vol 51(13), pp. 3693-3714, September 2007.
3. "The Performance Impact of Traffic Patterns on Routing Protocols in Mobile Ad Hoc Networks", Saumitra M. Das, Himabindu Pucha and Y. Charlie Hu. In Elsevier Computer Networks Journal (COMNET), Vol 51(12), pp. 3595-3616, August 2007.
4. "Mitigating the Gateway Bottleneck via Transparent Cooperative Caching in Wireless Mesh Networks", Saumitra M. Das, Himabindu Pucha and Y. Charlie Hu. In Elsevier Ad Hoc Networks Journal (AHN), Special Issue on Wireless Mesh Networks, Vol 5(6), pp. 680-703, August 2007. (28.5%)
5. "Imposing Route Reuse in Mobile Ad Hoc Network Routing Protocols using Structured Peer-to-Peer Overlay Routing", Saumitra M. Das, Himabindu Pucha and Y. Charlie Hu. In IEEE Transactions on Parallel and Distributed Systems (TPDS), Vol 17(12), pp. 1452-1467, December 2006 (16.6%)
6. "DMesh: Incorporating Practical Directional Antennas in Multi-Channel Wireless Mesh Networks", Saumitra M. Das, Himabindu Pucha and Y. Charlie Hu. In IEEE Journal on Selected Areas in Communications (JSAC), Special issue on Multi-Hop Wireless Mesh Networks, Vol 24(11), pp. 2028-2039, November 2006. (19%)
7. "Microrouting: A Scalable and Robust Communication Paradigm for Sparse Ad Hoc Networks", Saumitra M. Das, Himabindu Pucha and Y. Charlie Hu. In International Journal of Distributed Sensor Networks (IJDSN), Vol 2(1), pp. 79-100, January-March 2006.

BOOK CHAPTERS

1. "Peer-to-Peer Overlay Abstractions in MANETs", Y. Charlie Hu, Saumitra M. Das and Himabindu Pucha. Book Chapter in Theoretical and Algorithmic Aspects of Sensor, Ad Hoc Wireless, and Peer-to-Peer Networks, Jie Wu, Editor, CRC Press, 2005.

POSTERS AND WIPs

1. "Optimizing Data Transfers through Intelligent Resource Scheduling", SOSp WiP 2007.
2. "Exploiting Similarity for Multi-Source Downloads using File Handprints", GHC 2007.
3. "Characterizing Internet Delay Asymmetry", SIGCOMM 2007.
4. "Mitigating the Gateway Bottleneck via Transparent Cooperative Caching in Wireless Mesh Networks", MOBICOM 2006.
5. "Ending End-to-End Transport for High Throughput", SIGCOMM 2005.
6. "Mutating Tree-Based Overlay Multicast Protocols to Optimize Throughput", NSDI 2005.
7. "Distributed Hashing for Scalable Multicast in Wireless Ad Hoc Networks", NSDI 2005.
8. "How to Implement DHTs in Mobile Ad Hoc Networks?", MOBICOM 2004.

TALKS

1. "Exploiting Similarity for Multi-Source Downloads using File Handprints" At ACM Student Research Competition, 7th Grace Hopper Conference (GHC), Orlando, USA, October 18, 2007.
2. "Optimizing Data Transfers through Intelligent Resource Scheduling" At Work In Progress session, 21st ACM Symposium on Operating Systems Principles (SOSP), Skamania, USA, October 14, 2007
3. "Understanding Network Delay Changes Caused by Routing Events" At 10th ACM International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS), San Diego, USA, June 14, 2007.
4. "Exploiting Similarity for Multi-Source Downloads using File Handprints" At 4th USENIX Symposium on Networked Systems Design and Implementation (NSDI), Cambridge, USA, April 11, 2007.
5. "Exploiting Similarity for Multi-Source Downloads using File Handprints" At PDOS Group Seminar, MIT CSAIL, Cambridge, USA, April 10, 2007.
6. "On the Impact of Research Network Based Testbeds on Wide-area Experiments" At 6th ACM SIGCOMM/USENIX Internet Measurement Conference (IMC), Rio de Janeiro, Brazil, October 25, 2006.
7. "Ekta: An Efficient DHT Substrate for Distributed Applications in Mobile Ad Hoc Networks" At 6th IEEE Workshop on Mobile Computing Systems and Applications (HotMobile [WMCSA]), English Lake District, UK, December 3, 2004.
8. "Ekta: An Efficient DHT Substrate for Distributed Applications in Mobile Ad Hoc Networks" At Safari Retreat, CSD, Rice University, Houston, USA, November 2004.
9. "Peer-to-Peer Computing: A New Paradigm for Large Scale Distributed Applications" At Purdue ECE Graduate Seminar, West Lafayette, USA, September 18, 2003.

PROFESSIONAL SERVICE

Technical Program Committees

- 5th IEEE International Conference on Broadband Communications, Networks and Systems (BROADNETS), 2008 (Internet and wireless tracks)
- 16th IEEE Workshop on Local and Metropolitan Area Networks (LANMAN), 2008
- 37th International Conference on Parallel Processing (ICPP), 2008 (Peer-to-Peer track)
- 16th International Workshop on Quality of Service (IWQoS), 2008

Conference Reviews

SIGMETRICS 2008, HotNets 2008/2007, PODC 2005, ICC 2008/2007, INFOCOM 2007/2006/2005/2004, PerCom 2007, CCNC 2007, ICDCS 2006/2005, GLOBECOM 2006, LCN 2006, MP2P 2004, WONS 2007, AEPP 2005.

Journal Reviews

IEEE Transactions on Parallel and Distributed Systems (TPDS), IEEE Transactions on Mobile Computing (TMC), Elsevier Ad Hoc Networks Journal, IEEE Journal on Selected Areas in Communications (Quality of Service Delivery in Variable Topology Networks), IEEE Network Magazine (Special Issue on Wireless Mesh Networks: Applications, Architectures and Protocols), IEEE Communications Magazine, IEEE Communications Letters

REFERENCES

- Prof. Y. Charlie Hu, Associate Professor of Electrical and Computer Engineering and Computer Science, Purdue University
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Email: ychu@purdue.edu
- Prof. David G. Andersen, Assistant Professor of Computer Science, Carnegie Mellon University
Address: School of Computer Science, Carnegie Mellon University, 5000 Forbes Ave, Pittsburgh, PA 15213-3891
Phone: 412-268-3064, Fax: 412-268-5576
E-mail: dga@cs.cmu.edu
- Prof. Z. Morley Mao, Assistant Professor of Electrical Engineering and Computer Science, University of Michigan, Ann Arbor
Address: 2260 Hayward Avenue, 4629 Computer Science Division, Ann Arbor, MI 48109-2121
Phone: 734-763-5407, Fax: 734-763-8094
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- Dr. Michael Kaminsky, Researcher, Intel Research Lab - Pittsburgh
Address: 4720 Forbes Ave. Suite 410, Pittsburgh, PA 15213
Phone: 412-297-4100, Fax: 412-297-4110
Email: michael.e.kaminsky@intel.com
- Prof. Sonia Fahmy, Associate Professor of Computer Science, Purdue University
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