

Lenin Ravindranath Sivalingam

Researcher
Microsoft Research
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EDUCATION

- 09/2014 **Doctor of Philosophy** in Computer Science, GPA: 5.0/5.0
Massachusetts Institute of Technology, Cambridge, MA, USA
Advisor: Prof. Hari Balakrishnan
- 09/2010 **Master of Science** in Computer Science, GPA: 5.0/5.0
Massachusetts Institute of Technology, Cambridge, MA, USA
Advisor: Prof. Hari Balakrishnan
- 05/2006 **Bachelor of Engineering** in Computer Science, GPA: 9.73/10
College of Engineering, Anna University, Chennai, India

RESEARCH INTERESTS

Mobile Systems, Distributed Systems, Networking, Wireless

EMPLOYMENT

08/14 - current	Microsoft Research , Redmond, US	Researcher
11/11 - 01/13	Microsoft Research , Redmond, US	Associate Researcher
Summer '11	Microsoft Research , Redmond, US	Research Intern
Summer '09	Microsoft Research , Silicon Valley, US	Research Intern
08/06 - 08/08	Microsoft Research , Bangalore, India	Assistant Researcher
Summer '06	Microsoft Research , Bangalore, India	Research Intern
Summer '05	Microsoft Research , Redmond, US	Research Intern
Summer '04	Microsoft India Development Center	Software Developer Intern

PUBLICATIONS

CONFERENCE PAPERS

* Authors in alphabetical order, ^ Co-primary

- SenSys '15 **Glimpse: Continuous, Real-Time Object Recognition on Mobile Devices**
T. Chen, L. Ravindranath, S. Deng, P. Bahl, H. Balakrishnan
- SoCC '15 **Domino: Understanding Wide-Area, Asynchronous Event Causalities in Web Applications**
D. Li, J. Mickens, S. Nath, L. Ravindranath
- MCC '15 **How to Smash the Next Billion Mobile App Bugs?**
R. Chandra, B. Karlsson, N. Lane, C. Liang, S. Nath, J. Padhye, L. Ravindranath, F. Zhao
- MobiSys '14 **Automatic and Scalable Fault Detection for Mobile Applications**
L. Ravindranath, S. Nath, J. Padhye, H. Balakrishnan
- MobiSys '14 **Procrastinator: pacing mobile apps' usage of the network**
L. Ravindranath, S. Agarwal, J. Padhye, C. Reidinger
- SOSP '13 **Timecard: Controlling User-Perceived Delays in Server-Based Mobile Applications**
L. Ravindranath, J. Padhye, R. Mahajan, H. Balakrishnan

- MobiSys '13 **SmartAds: Bringing Contextual Ads to Mobile Apps**
S. Nath, F. Lin, L. Ravindranath, J. Padhye
- OSDI '12 **ApplInsight: Mobile App Performance Monitoring in the Wild**
L. Ravindranath, J. Padhye, S. Agarwal, R. Mahajan, I. Obermiller, S. Shayandeh
- NSDI '11 **Improving Wireless Network Performance Using Sensor Hints**
Nominated L. Ravindranath, C. Newport, H. Balakrishnan, S. Madden
- NSDI '11 **Accurate, Low-Energy Trajectory Mapping For Mobile Devices**
A. Thiagarajan, L. Ravindranath[^], H. Balakrishnan, S. Madden, L. Girod
- OSDI '10 **Nectar: Automatic Management of Data and Computation in Data Centers**
P. Gunda, L. Ravindranath*, C. Thekkath, Y. Yu, L. Zhuang
- SenSys '09 **VTrack: Accurate, Energy-Aware Traffic Delay Estimation Using Mobile Phones**
Best Paper A. Thiagarajan, L. Ravindranath[^], K. LaCurts, S. Toledo, J. Eriksson, S. Madden, H. Balakrishnan
- ICNP '09 **Dircast: A Practical and Efficient Wi-Fi Multicast System**
R. Chandra, T. Moscibroda, V. Navda, J. Padhye, R. Ramjee, L. Ravindranath*
- MobiSys '08 **SixthSense: RFID-based Enterprise Intelligence**
L. Ravindranath, P. Agrawal, V. Padmanabhan
- MobiSys '07 **COMBINE: Leveraging the Power of Wireless Peers through Collaborative Downloading**
G. Ananthanarayanan, V. Padmanabhan, L. Ravindranath, C. Thekkath
- MobiSys '06 **Enhancing Security of Corporate Wi-Fi Networks Using DAIR**
P. Bahl, R. Chandra, J. Padhye, L. Ravindranath*, M. Singh, A. Wolman, B. Zill

WORKSHOP PAPERS

- HotNets '13 **Give in to procrastination and stop prefetching**
L. Ravindranath, S. Agarwal, J. Padhye, C. Reidner
- APSys '13 **Mobile Applications Need Targeted Micro-Updates**
A. Cheung, L. Ravindranath*, E. Wu, S. Madden, H. Balakrishnan
- HotMobile '12 **Code In The Air: Simplifying Sensing and Coordination Tasks on Smartphones**
L. Ravindranath, A. Thiagarajan, H. Balakrishnan, S. Madden
- Hotnets '10 **"Extra-Sensory Perception" for Wireless Networks**
L. Ravindranath, C. Newport, H. Balakrishnan, S. Madden
- WREN '09 **Adapting Dependency Graph Models For Unified Diagnosis in Wired/Wireless Networks**
L. Ravindranath, V. Bahl, R. Chandra, D. Maltz, J. Padhye, P. Patel
- HotMobile '08 **Wi-Fi Neighborcast: Enabling Communication Among Nearby Clients**
R. Chandra, J. Padhye, L. Ravindranath*
- HotMobile '07 **Beacon-Stuffing: Wi-Fi without Associations**
R. Chandra, J. Padhye, L. Ravindranath*, A. Wolman
- HotMobile '07 **Collaborative Downloading for Multi-homed Wireless Devices**
G. Ananthanarayanan, V. Padmanabhan, C. Thekkath, L. Ravindranath
- HotNets '05 **DAIR: A Framework for Managing Enterprise Wireless Networks Using Desktop Infrastructure**
P. Bahl, J. Padhye, L. Ravindranath*, M. Singh, A. Wolman, B. Zill

POSTERS AND DEMOS

- SenSys '15 **Glimpse: Continuous, Real-Time Object Recognition on Mobile Devices**
Demo T. Chen, L. Ravindranath, S. Deng, P. Bahl, H. Balakrishnan

- MobiSys '12 **Code In The Air — Simplifying Tasking on Smartphones**
 Demo L. Ravindranath, T. Chen, A. Sivaraman, H. Balakrishnan, S. Madden
- SenSys '10 **Code In The Air — Simplifying Sensing on Smartphones**
 Demo T. Kaler, J. Lynch, T. Peng, L. Ravindranath*, A. Thiagarajan, H. Balakrishnan, S. Madden

TECH REPORTS

- MIT 2015 **Designing a Context-Sensitive Detection Service for Mobile Devices**
 T. Chen, A. Sivaraman, S. Das, L. Ravindranath, H. Balakrishnan
- MSR 2010 **Nectar: Automatic Management of Data and Computation in Data Centers**
 P. Gunda, L. Ravindranath*, C. Thekkath, Y. Yu, L. Zhuang
- MSR 2008 **Towards Unified Management of Networked Services in Wired and Wireless Networks**
 P. Bahl, R. Chandra, D. Maltz, P. Patel, J. Padhye, L. Ravindranath*

TALKS

- 2015 **Think like a programmer**
 Computing For All
- 2014 **Improving the Performance and Reliability of Mobile Applications**
 UT Austin, Microsoft Research
- 2013 - 2014 **Automatic and Scalable Fault Detection For Mobile Applications**
 Microsoft TCN, MSR Rise Group, MIT Wireless Center Retreat, MobiSys 2014
- 2013 **Controlling User-Perceived Delays For Server-Based Mobile Applications**
 SOSP 2013, Dropbox RoundTable
- 2013 **Procrastinate, Stop Prefetching!**
 HotNets 2013
- 2012 **Mobile App Performance Monitoring in the Wild**
 OSDI 2012, Microsoft Product Groups
- 2012 **Simplifying Tasking on Smartphones**
 HotMobile 2012, Bank of America Business Plan Contest
- 2010 – 2011 **Improving Wireless Network Performance Using Sensor Hints**
 NSDI 2011, HotNets 2010, MIT
- 2009 **Automatic Management of Data and Computation in Data Centers**
 Microsoft Research Silicon Valley
- 2009 **Accurate Energy-Aware Road Traffic Delay Estimation Using Mobile Phones**
 S3 2009
- 2008 **RFID-based Enterprise Intelligence**
 MobiSys 2008, Indian Institute of Science
- 2006 – 2008 **WiFiAds, Neighborcast and Post-its in the air**
 Microsoft Research India Tech Talk, Microsoft Code4Bill

PROFESSIONAL ACTIVITIES

Organizer and PC Chair: ACM S3 at MobiCom 2013
Program Committee: MobiSys 2016, Infocom 2016, MobiSys 2015 (light), WWW 2015
External Reviewer: UbiComp 2015, SigComm 2015, SOSP 2013, NSDI 2011, INFOCOM 2008, IEEE Transactions on Mobile Computing (TMC), ACM SIGMOBILE Mobile Computing and Communications Review (MC2R), ACM Transactions on Sensor Networks (TOSN), IEEE/ACM Transaction on Networking (TON), ACM Computer Communication Review (CCR)

US Patent # **PATENTS**

Filed Migration of Graphics Processing Unit (GPU) States
20140380282 Monitoring Mobile Application Performance
20140082214 Reducing Network Usage of Computing Device
20140280443 Application-Centric Socialization
20140372216 Contextual Mobile Application Advertisements
20130332442 Deep In-App Crawling
20130254749 Dynamically providing application analytic information
20110211517 Efficient and Reliable Multicast over a Wi-Fi Network
20100075697 Wi-Fi and GSM Landmarks and Neighborhoods for Location Based Services
20090315678 RFID-based Enterprise Intelligence
20090185514 Wireless Communications Environment Overlay
20080165701 Collaborative Downloading for Multi-homes Wireless Devices
20110271345 Detection of rogue wireless devices from dynamic host control protocol requests
20070298720 Detection and management of rogue wireless network connections

PRODUCTS AND TECHNOLOGY LICENSING

2014 **VanarSena: Mobile App Testing**
Microsoft
2012 **ApplInsight: Mobile App Analytics**
Microsoft
2011 **Accurate, Energy-Aware Traffic Delay Estimation Using Mobile Phones**
Cambridge Mobile Telematics

TEACHING AND MENTORING

Teaching Teaching Assistant, Digital Communication Systems, MIT, Fall 2013 (Ratings: 6.4/7.0)
Taught two programming courses to undergraduates, Anna University, 2005 – 2006
Mentoring Mentored 3 undergraduate students, 2 graduate students, and 1 high school student
at MIT and Microsoft Research

AWARDS AND HONORS

2011 – 2013 Microsoft Research PhD Fellowship
2011 NSDI Best Paper Nominee
2009 Sensys Best Paper Award
2008 – 2009 MIT - Cisco Graduate Fellowship
2009 Best Panelist Award, ACM S3
2006 Anna University Gold Medal
2006 Meritorious Student Award and Indian Prime Minister's Guest of Honor
2006 TCS Best Student Award and Gold Medal
2006 Awarded one of top 20 Student Technologists in India, Microsoft
2005 Undergraduate India Intern Program, Microsoft Research, Redmond
2005 Annual Day Award and Alumni Award for highest GPA, Anna University
2002 Meritorious Student Award, Tamil Nadu Govt., India, Higher Secondary Exam

PRIZES

01/2010 Grand Prize Winner, Microsoft Windows 7 Competition
01/2009 Winner, Bank of America Award, Mobile Application Competition
07/2006 Runner Up, Microsoft Code4Bill Contest

- 10/2005 5th place, Asia Regional Finals, 30th ACM ICPC Programming Contest, Kolkatta, India
- 2002 – 2006 Winner of several inter- and intra-college programming contests

CO-CURRICULAR ACTIVITIES

- 2007 – 2008 Puzzle Hunt organizer and Grand Puzzle Master, Microsoft Research India Puzzle Hunt
- 2005 – 2006 President, Computer Society of Anna University
- 2005 – 2006 Executive member, ACM Chapter of Anna University
- 2004 – 2005 Vice President, Computer Society of Anna University
- 2002 – 2006 Event organizer for several inter- and intra-college puzzle, project and programming events
- 2002 – 2003 Member of National Service Scheme

PRESS

- 2011 Wireless ESP: MIT Press, Engadget, GigaOm
- 2008 SixthSense: Ubergizmo, ComputerWorld Canada
- 2008 COMINE: India Times, Rediff, The Hindu, Business Line
- 2007 WiFiAds: MSNBC, SeattlePI, Engadget