

UMA PARTHAVI MORAVAPALLE

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EDUCATION

Georgia Institute of Technology PhD in Electrical & Computer Engineering	<i>Expected Graduation date: July 2018</i> GPA 4.0/4.0
Indian Institute of Technology Delhi B.Tech in Electrical Engineering M.Tech in Information and Communication Technology	<i>May 2012</i> GPA 9.07/10 GPA 9.74/10

WORK EXPERIENCE

Microsoft Research, Bengaluru, India <i>Research Intern</i>	May 2016 - Aug 2016 <i>Mentors: Ramachandran Ramjee, Amit Deshpande, Ashish Kapoor (MSR Redmond)</i>
<ul style="list-style-type: none">Designed and prototyped an optical clip-on attachment to smartphone to obtain blood cell densityDeveloped an algorithm pipeline to identify and count the cells within a video scan from the attachmentImplementation of the algorithm using OpenCV showed less than 4% error on real blood samples	
Hewlett-Packard Labs, Palo Alto, CA <i>Research Associate</i>	Jan 2015 - May 2015 <i>Mentors: Shruti Sanadhya, Abhinav Parate, Kyu-Han Kim</i>
<ul style="list-style-type: none">Extensively profiled LTE and WiFi networks in the wild from user devicesProposed a novel method to estimate the expected throughput of each device connected to a LTE small cellEvaluated the metrics in NS-3 and demonstrated 92% reduction in error compared to related approaches	

SELECTED PUBLICATIONS & PATENTS

- Just Do It: Fast and Easy Mobilization of Spot Tasks in Web-based Enterprise Applications**
Uma Moravapalle and Raghupathy Sivakumar [ACM HotMobile 18]
- Precog: Action-based Time-shifted Prefetching for Web Applications on Mobile Devices**
Uma Moravapalle, Shruti Sanadhya, Kyu-Han Kim and Raghupathy Sivakumar [ACM/IEEE HotWeb 17]
- Dejavu: A Case for Assisted Email Replies on Smartphones**
Uma Moravapalle and Raghupathy Sivakumar [IEEE WiMob 17]
- Pulsar: Improving throughput estimation in enterprise LTE small cells**
Uma Moravapalle, Shruti Sanadhya, Abhinav Parate and Kyu-Han Kim [ACM CoNEXT 15]
- Blood Count on a smartphone microscope: Challenges**
Uma Moravapalle, Amit Deshpande, Ashish Kapoor, Ramachandran Ramjee, Priya Ravi [ACM HotMobile 17]
- Peek: A mobile-to-mobile remote computing protocol for smartphones and tablets**
Uma Moravapalle and Raghupathy Sivakumar [IEEE ICNC 16]
- Duet: An Adaptive Algorithm for the Coexistence of LTE-U and WiFi in Unlicensed Spectrum**
Yubing Jian, Uma Moravapalle and Raghupathy Sivakumar [IEEE ICNC 17]
- Device throughput determination** [Patent WO 2017058247]

AWARDS & HONORS

- Director's Medal**, IIT Delhi for graduating with the highest CGPA in the program May 2012
- Seven time recipient of **Director's Merit Award**, IIT Delhi 2008-2012
- Student Undergraduate Research Award 2009**, IIT Delhi Jun 2009
- Scholarship grant**, Ministry of HRD for pursuing Master's research May 2011
- Awarded by Dean, UG Studies for exceptional performance as T.A. May 2011
- Travel grants towards MobiSys 17, HotMobile 17 and CoNEXT 15

RESEARCH INTERESTS

Mobile computing, Enterprise software, Wireless networks, Mobile web, Natural language processing applications

SELECTED PROJECTS

Taskr: Codeless Mobilization of Web-based Enterprise Applications

- Taskr is a fast and easy do-it-yourself application mobilization solution that auto-generates tailored smartphone apps for each enterprise employee just by passively observing their Desktop application usage activity
- Developed a remote computing framework that refactors Desktop application UI into a smartphone native UI
- Designed a prototype consisting of a Chrome browser add-on to record user activity, an Android client to present the mobilized workflows and a Python server (deployed on Amazon EC2) to auto-generate apps
- User studies showed a **40% reduction in user burden** to perform workflows on Taskr compared to the Desktop

Precog: Prefetching for Time Shifted WiFi Offloading

- Precog is an action based prefetching solution that enables the mobile device to perform time-shifted prefetch over WiFi, the content the user is most likely to access over the cellular network in the future
- Conceptualized a solution that leverages consistency in HTML DOM layout of a website to predict user behavior on websites; identified key issues in name based prefetching solutions
- Developed a plugin for Firefox on Android that captures user actions and a system to replay these actions on a server using SlimerJS and CasperJS
- Preliminary results from several users show a **1.4X improvement in byte savings** over name based prefetching

Dejavu: Assisted Email Replies on Smartphones

- Dejavu is an enterprise email assistant that provides information nuggets as suggestions for responses to user's emails based on the data contained within the user's Mailbox
- Motivated the need for assisted email replies by analyzing the redundancies in several large-scale public and private email datasets; The analysis showed that 1 in 5 email responses were already present in the user's mailbox
- Developed a simple algorithm that relies on inverse document frequency (IDF) and keyword matching to provide relevant suggestions during reply construction
- Implemented a prototype of the email assistant for Android smartphones; The email assistant succeeded in providing **relevant suggestions for 1 in 3 emails**

Peek: Mobile to Mobile Remote Computing for Smartphones

- Peek is a remote computing platform that enables smartphone users to access and operate other smartphones seamlessly with either their own context or the remote device context
- Developed a protocol to capture context and touch information on a smartphone and execute it on a remote device, enabling a smartphone user to seamlessly interact with the remote device
- Designed a suite of strategies to effectively reduce the network load by leveraging redundancy in non-adjacent screens in a remote computing session
- Implemented the protocol on Android devices and demonstrated a **reduction of 62% in action times**

TECHNICAL SKILLS

- **Proficient in** Python
- **Some Experience with** Java, C++, Android SDK, \LaTeX
- **Dabbled in** Javascript, C, Shell/Bash, HTML/CSS, Matlab, Network simulators NS2 and NS3

TEACHING EXPERIENCE

- Teaching assistant for UG course: Fundamentals of Electrical Engineering (Jan 2011 - May 2012)
- Student Mentor for freshmen undergraduate students (July 2009 - May 2012)
- Delivered guest lectures for graduate Wireless Networks and undergraduate Mobile Networks courses

ADDITIONAL INFORMATION

- Languages: Proficient in English, Hindi and Telugu (native).
- I am passionate about Crochet and Sewing; I made over 30 Pokemon crochet dolls
- I am an amateur Kuchipudi dancer; I performed at the opening ceremony of International Children's Film Festival '05 at Hyderabad, India