Mostafa Uddin

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Objective A Research or Software Engineering intern position.

Research Interest My research focus is in **Mobile Computing** and **Wireless Network**. I am interested in developing systems and applications that is involved with **WiFi Interfaces, Bluetooth interfaces, Linux Network Layer, Acoustic driver, Sensing technology, Signal Processing,** and **Machine Learning**. In developing such systems and applications, I address research challenges that requires profound knowledge of physical world, mobility, context, and hacking drivers/kernel. Recently, I have been addressing research challenges in **developing performance** and **energy efficiency** of the **wireless communication** for the smart devices. Moreover, I have been involved in developing systems that exploits smartphone sensing in **Health Informatics** and **Smart Home** applications.

Education

Old Dominion University, Norfolk, VA, USA
PhD in Computer Science (2011 - present)
Advisor: Dr. Tamer Nadeem (nadeem@cs.odu.edu)
CGPA 3.97/4.0 (until Spring 2013)

Bangladesh University of Engineering and Technology, Dhaka, Bangladesh
B.S. in Computer Science and Engineering, 2006
CGPA 3.72/4.0

Experience

Research Assistant, Computer Science, ODU, Norfolk, VA **Fall 2011-present**
Advisor: **Dr. Tamer Nadeem**, Assistant Professor

- **CHKD**: In this project, we use accelerometer, gyroscope, and compass sensors of the smartphone to build an automatic tool to create spaghetti diagrams of movements of personnel in a non-intrusive way.
- **meSDN**: In this project, we extend the SDN framework to the client devices to provide services such as WLAN virtualization with end-to-end QoS. This is a collaboration research project with HP Labs, Palo Alto, CA.
- **Audio-WiFi**: In this project, we build a novel framework that integrate the Audio interface (mic,speaker, and sound driver) with the Wi-Fi Interface to develop a more efficient Wi-Fi network communication for smart devices.
- **MagnoTricorder**: In this project, we leverage the effect of Electro Magnetic Interference (EMI) generated by the AC current in the main power-line at home to identifying and detecting the running devices. In this project we use magnetic field sensor of the smartphone, signal processing, and machine learning technique to build the system.
- **EnergySniffer**: In this project we use the acoustic sensors of the smartphone to identify the running machines at home. We use signal processing and machine learning technique to build such system.
- **ParkZoom**: This is an infrastructure aided smartphone sensing based parking localization system. This is a collaboration project with Siemens Corporate Research to develop smart parking system.

Teaching Assistant, Computer Science, ODU, Norfolk, VA **Fall 2011-present**

- CS300 - Computer in Society, Fall 2011.
- CS250 - Programming and Problem Solving II, Spring 2012.
- CS495/595 - App Development for Smart Devices, Fall 2012.
- CS495/595 - App Development for Smart Devices, Fall 2013.

Research Associate Intern, HP Labs, Palo Alto, CA **May,2013 - August,2013**
Mentor: **Jeongkeun Lee**, Senior Research Scientist

- Extending the SDN framework to the wireless end devices.
- WLAN virtualization with performance guarantee.
- Implementing customized Qdisc for Linux Network stack.
- Implementing required interaction between WiFi driver and Linux Qdisc.
- Deploying open vSwitch in Android platform using cross-platform compiling.

Software Engineer, KAZ (www.kaz.com.bd), Dhaka, Bangladesh **Feb '08-Dec '09**

- Research and Development in ITE Enterprise project, an international tax management tool.
- Developing an installer and auto updating mechanism using InstallShield 2008 for the ITE Enterprise product.
- Programming in C#, WCF and WPF.

Software Engineer, SDSL(www.sdslbd.com), Dhaka, Bangladesh **Nov '06-Feb '08**

- GPS based Real-Time Navigation system for Mobile devices using Symbian C++/S60.
- Instant Mobile Messenger Application for Mobile devices in Symbian OS.
- Developing Mobile Map(http://maps.afrigis.co.za/mobi/splash.html), a J2ME mobile application.
- Developing GRID(http://www.thegrid.co.za/about), a J2ME mobile application.

Software Engineer Intern Vertex Limited, Dhaka, Bangladesh **Dec '05 - May '06**

- Developing software for the RTA-600 Time attendance device. (Java)

Computer Skills

Programming Skill:	C/C++, Java, Python, C#, SQL, JavaScript/CSS/D3, nesC
Technical Skill	Android Programming, Linux Kernel Programming, Linux Network Stack (IP, Qdisc, Bridge, Core, mac80211 etc.) hacking, Wireless Driver Hacking(Qualcomm, Broadcom, TI etc.) Audio Driver Hacking (ALSA), Signal Processing, Machine learning, Smartphone Power Monitoring(Monsoon), USRP and GNU Radio, MATLAB, Octave, Weka-Data mining tool, TinyOS- TelosB Sensor.

Selected Publications:

- RF-Beep: A light ranging scheme for smart devices
  Mostafa Uddin and Tamer Nadeem
  IEEE PerCom 2013 (Acceptance rate 11.2%)
- A2PSM: Audio Assisted Wi-Fi Power Saving Mechanism for Smart Devices
  Mostafa Uddin and Tamer Nadeem
  ACM HotMobile 2013 (Acceptance rate 31.5%)
- SmartSpaghetti: Use of Smart Devices to Solve Health Care Problems
  Mostafa Uddin, Ajay Gupta, Kurt Maly, Tamer Nadeem, Sandip Godambe, and Arno Zaritsky
  International Workshop on Biomedical and Health Informatics, 2013 (Acceptance rate 18%)

- SpyLoc: a Light Weight Localization System for Smartphones (SRC Presentation & Poster)
  Mostafa Uddin and Tamer Nadeem
  In Proceedings of ACM MobiCom'13
- MagnoTricorder: What You Need To Do Before Leaving Home
  Mostafa Uddin and Tamer Nadeem
  ACM HomeSys 2012
- EnergySniffer: Home Energy Monitoring System using Smart Phones
  Mostafa Uddin and Tamer Nadeem
  IEEE IWCMC 2012
- Report of HotMobile 2012
  Igor Pernek, Mostafa Uddin and Jack Fernando Bravo Torres
  IEEE Pervasive Computing
- HotMobile 2012 Poster: MachineSense: Detecting and Monitoring Active Machines using Smart Phone
  Mostafa Uddin and Tamer Nadeem
  ACM SIGMOBILE MC2R
- Demo: Audio-WiFi: Audio Channel Assisted WiFi Network for Smart Phones
  Mostafa Uddin and Tamer Nadeem
  IEEE INFOCOM 2012

Patents and Invention Disclosures

Jung Gun Lee, Mostafa Abdulla Zahid Uddin, Jean Tourrilhes, Souvik Sen, Manfred R Arndt. "Wireless Software-Defined Networking", Patent Application Filed on Oct 2013.

News/Media

Researchers develop sound way to improve smartphone battery life(V3 online Magazine)

Awards

Microsoft Research "ACM SRC" Grant Recipient for MobiCom 2013, Miami, FL.
NSF Student Travel Grant Recipient for MobiCom 2013, Miami, FL.
NSF Travel grant for attending IEEE PerCom 2013.
ACM SIGMOBILE Travel grant for attending HotMobile 2013.
Outstanding RA (fall 2012) - Computer Science Department.
Travel grant for attending HoMobile 2012, INFOCOM 2012, and Ubicomp2012(from CS Department of ODU).
Dominion Graduate Scholar offered by College of Sciences ODU.
Dean's List Scholarship during undergraduate studies at BUET.
Placed in top 1% in Higher Secondary Exam (A-level) in Bangladesh.
Placed in top 1% in Secondary School Exam (O-level) in Bangladesh.

Professional Services

Student Volunteer in MobiCom'2013, HotMobile'2013
Reviewer through Advisor: IEEE ICC 2014, IEEE PerCom'2014, IEEE Globecom' 2013, IEEE IWCMC'2013.

Membership & Activities

ACM SIGMOBILE Student Member
ACM Student Member
Member of Software Design Group (http://sdgbuet.tripod.com),
Bangladesh University of Engineering & Technology(Feb 2003- Nov 2006).