Mahmudur Rahman

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Professional Highlights

Extensive research experience in distributed systems, security, privacy, data mining, machine learning.

- Developed solutions to detect fraudulent review behaviors. Identified hundreds of deceptive Yelp venues.
- Detected, exploited and patched security and privacy vulnerabilities in fitness trackers (Garmin Forerunner, Fitbt).
- Developed sensor based plagiarism detection system for citizen journalism videos, for Google Glass and Android phones.

Education

Aug 2010–Current **PhD Candidate in Computer Science**, *Florida International University*, Miami, FL, Thesis Proposal: Securing user interactions in online social networks.

Aug 2010–Dec 2012 **M.Sc. in Computer Science**, *Florida International University*, Miami, FL, *GPA – 3.64*.

Feb 2003–Nov 2007 **B.Sc. in Computer Science and Engineering**, *Bangladesh University of Engineering and Technology*, Dhaka, Bangladesh, *GPA – 3.42*.

Work Experience

Aug 2011–Current **Research Assistant**, Cyber Security and Privacy Research (CaSPR) Lab, FIU, Miami, FL.
Investigated security and privacy aspects of distributed computing systems, online social networks and wearable sensor technology.

Jan 2008–Aug 2010 **System Engineer**, NOC, Grameenphone Ltd., Dhaka, Bangladesh.
Developed and implemented network fault handling tools (incorporated with iNMS). Developed techniques to identify recurring network outage issues. Reduced core and service network outages by approximately 20%.

Feb 2006–Jan 2007 **Network Engineer**, Arena InfoTech Ltd., Dhaka, Bangladesh.
Built a large-scale parser for network logs for network fault troubleshooting using NLP techniques.

Technical Skills

Programming Java (Expert), Python, R, C/C++, C#, HTML5, JavaScript, XML, Unix Shell Scripting

Database MySQL (Expert), PostgreSQL, SQL Server 2008/2012, Oracle

Framework Android (Expert), Apache Axis2, Hadoop, Hive, ASP.NET, jQuery

Security RSA, ECC, ElGamal, RSA, CBC, SHA, HMAC, AES, DES, X.509 Certificate, Authentication, Secret Sharing, Digital Signature

Most Relevant Publications

- Published 14 articles in top peer-reviewed journals and conferences such as IEEE TPDS, IEEE TIFS, SIAM SDM, IEEE ICNP, and ACSAC.

IEEE TPDS 2014 Jaime Ballesteros, **Mahmudur Rahman**, Bogdan Carbunar, Naphtali Rishe, S.S. Iyengar, "Towards Safe Cities: A Mobile and Social Networking Approach", *2014.*

ACSAC 2013 **Mahmudur Rahman**, Umut Topkara, Bogdan Carbunar, "Seeing is Not Believing: Visual Verifications through Liveness Analysis using Mobile Devices", *2013.*

IEEE ICNP 2014 **Mahmudur Rahman**, Bogdan Carbunar, Umut Topkara, "SensCrypt: A Secure Protocol for Managing Low Power Fitness Trackers", *2014.* ***Media Coverage:*** *http://users.cis.fiu.edu/~mrahm004/fitlock/.*

SIAM SDM 2014 **Mahmudur Rahman**, Bogdan Carbunar, Jaime Ballesteros, George Burri, Duen Horng (Polo) Chau, "Turning the Tide: Curbing Deceptive Yelp Behaviors", ***SDM Best Student Paper Award****, 2014.*

IEEE HotPOST 2013 Jaime Ballesteros, **Mahmudur Rahman**, Bogdan Carbunar, Naphtali Rishe, "Yelp Events: Making Bricks Without Clay?",***Best Paper Award****, 2013.*

Projects

Jan 2013-Nov 2014 **Marco: Detecting fake reviews and campaigns in Yelp**.
Developed a novel system that exploits the unique combination of social, spatial and temporal information gleaned from Yelp, along with data mining and machine learning algorithms to detect deceptive reviews and venues. (Programming: Python, R, Java, Weka)

Aug 2012-Mar 2015 **SensCrypt: A Secure Protocol for Managing Low Power Fitness Trackers**.
Demonstrated security and privacy vulnerabilities in wearable fitness trackers. Built attack tools. Developed a secure, cost-effective prototype tracker on Arduino. (Programming: Python, Shell, Arduino)

Mar 2013-Dec 2014 **Movee: Video Liveness Analysis for Mobile Devices**.
Designed and implemented a video "liveness" analysis system. Movee uses image processing, DTW and machine learning techniques to achieve 92% accuracy on mobile (Google Glass, smartphone) videos. (Programming: Google Glass Development Kit, Android, Java, OpenCV, Weka, R)

Apr 2012-Jan 2013 **iSafe: A mobile and social networking approach towards safe cities**.
Developed a privacy preserving solution for computing safety snapshots of co-located mobile devices and geosocial network users for Miami-Dade county (FL). iSafe leverages time series forecasting, and uses crime, Census and Yelp review data. (Programming: Android, JavaScript (Chrome extension), HTML, MySQL)

Sep 2014-Current **FoulPlay: A Study of Fraud in Google Play**.
Developing a novel system on data mining, machine learning and NLP techniques to detect suspicious Android apps. (Programming: Python, R, MySQL)

2011 **System Event Trend**.
Implemented an online system monitoring tool for IT administrators using AppFirst's API and system alerts data. (Front-end: ASP.net, Back-end: C#, JSON Database: MySQL)

2010 **Virtual Lab System**.
Designed and implemented the resource management system to improve the e-mentoring module of virtual lab system for the IT automation course in FIU. (Front-end: PHP, Back-end: Java, Web server: Apache Tomcat, Database: PostgreSQL)

Honors, Awards, Certificates and Activities

2010 Best Performer Award, Network Management, NOC, Grameenphone Ltd (Telenor)

2013 Microsoft Research "ACM SRC" Grant, ACM MobiCom

2003-2007 Bangladesh Government Scholarship (3rd highest score among 1 million students)

Oct'07-Oct'10 Cisco Certified Network Associate (CCNA)

May 2013–Aug 2013 Research Mentor, NSF Research Experience for Undergraduates, Miami, FL. Mentored a team of two undergraduate students to develop a routing algorithm to identify the shortest safest path using postGIS + OSM