

Muhammad Sajidur Rahman

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Profile Summary

- Goal oriented, team player, problem-solver.
- Proven skills on designing and carrying out research studies, analyzing results both qualitatively and quantitatively, scrutinizing output and improving methods if necessary.
- Areas of research interest: Data mining, Social computing, Human-centered system design.
- 3.5+ years of extensive working experience as a Software Engineer in fintech industry, SaaS in general.
- Ready to hit the ground running and produce results.

Education

University of Florida

PHD STUDENT, DEPT. OF COMPUTER SCIENCE

Gainesville, FL

Expected in May, 2021

Kansas State University

M.S. IN COMPUTER SCIENCE

Manhattan, KS

Graduated in May, 2017

- **MS Thesis:** An Empirical Case Study on Stack Overflow to Explore Developers' Security Challenges.

Bangladesh University of Engineering and Technology (BUET)

B.S. IN COMPUTER SCIENCE AND ENGINEERING

Dhaka, Bangladesh

Graduated in January, 2011

- **Undergrad Thesis:** Location aware fuzzy logic based decision making of vertical handoff in heterogeneous wireless networks.

Research and Professional Experience

Florida Institute for Cybersecurity Research (FICS)

GRADUATE RESEARCH ASSISTANT

University of Florida

May. 2017 - Present

- Responsibilities include but not limited to designing experiment, performing data analysis, reviewing literature and programming.
- Remodeled and improved audio data capture functionality using JavaScript and Node.js for enhanced data logging and exception handling, which reduced audio-data loss from 30% to 4%.
- Currently investigate: i) developers' software security related blind spots while using security-critical APIs and ii) developing developer-centric security tools to illuminate API blind spots.

Cyber Security Lab

GRADUATE RESEARCH ASSISTANT

Kansas State University

Aug. 2014 - Dec. 2016

- Remodeled and improved functionality on firefox SSL extension launcher for data logging and proxy setting.
- Conducted semi-structured interview, synthesized survey responses and interpreted interview transcripts to elicit consumer usage pattern and behavior of different payment methods.
- Applied topic modeling in dataset collected from StackOverflow QA site to gauge software developers' security perception.

Department of Computer Science

GRADUATE TEACHING ASSISTANT

Kansas State University

Spring 2015, 2016, 2017

- Instructed lab classes for 'Computer Architecture and Operations' and 'Java Programming Language' courses during Spring semester for three consecutive years.
- Mentored students for assignments/projects, motivated them to enjoy solving programming problems, evaluated assignments and exam papers.

Dynamic Solution Innovators, Inc.

SENIOR SOFTWARE ENGINEER

Dhaka, Bangladesh

Mar. 2014 - July 2014

- Designed and implemented JSON-RPC based microservices for a SaaS based Educational ERP solution.
- Implemented AMQP-based messaging protocol to facilitate fast and scalable client-server communication where client was a Node.js application and server side was a Java component-based framework.
- Reorganized and simplified online payment processing module which resulted in over 50% more efficient than previous one.

Progoti Systems Limited (FinTech company)

SENIOR SOFTWARE ENGINEER

Dhaka, Bangladesh

Mar. 2012 - Feb. 2014

- Orchestrated the engineering and architecture of the core service engine for **SureCash** Mobile Financial Service as a SaaS model which provides money deposit, withdraw and P2P and B2B financial transactions with seamless user experience.
- Headed several major milestones and new product features including three large bank integration with SureCash payment service, implementing and operationalizing USSD based push-pull service to ensure secure and seamless money withdraw service from either Human or ATM agents, rolling out third-party utility bill payment service, to name a few.

Prime Bank Limited

INFORMATION TECHNOLOGY ENGINEER

- Implemented an automated ETL service to run at the end of business hours to fetch data from core-banking system's data archive and populate MIS database for further analysis.
- Designed and developed centralized MIS web portal with secure, role-based access control for corporate/retail-banking/credit-card divisions to facilitate real time financial report generation and view from historical dataset. This system increases efficiency of these divisions in decision making and policy planning over 50%.

Dhaka, Bangladesh

Mar. 2011 - Feb. 2012

Enosis Solutions Limited

SOFTWARE ENGINEERING INTERN

- Worked as part of a team to develop intelligent location-based mobile advertisement platform.
- Programmed and tested new components as well debugged new features and products.
- Technology used: **C#, MSSQL**.

Dhaka, Bangladesh

Nov. 2010 - Jan. 2011

Skills

Programming Languages	Java, C/C++ (advanced); Python, C# (moderate); R, SML (prior experience)
Frameworks	Spring, Grails, JavaEE(Servlet/JSP), Hibernate (advanced)
Big Data Technologies	Apache Hadoop, Apache Spark, Apache Pig (moderate)
Pen-testing Tools	Metasploit, Kali Linux, Windbg (prior experience)
Database	MySQL, MS-SQL (advanced); Oracle, PostgreSQL (prior experience)
User-Centered Design	Experiment design, Usability analysis, Qualitative & Quantitative Data analysis, Survey & Interview design (moderate)

Academic Projects

Developer-centric Source code linting tools

FICS, UF

RESEARCH PROJECT

May 2017 - Present

- Investigating developers' blind spots while using security critical APIs (*in the context of loosely typed programming languages, e.g. Python*) through developer crowdsourcing.
- Currently prototyping a source code linting tool based on SonarQube Rule engine. Tools used: **Sonar AST tool, XPath Query**.

Alexa, send SMS to John! : Voice Activated SMS Sending App

K-State

MAJOR LEAGUE HACKATHON, K-STATE

May. 2016

- Worked in a team of three to build voice-activated application for Alexa. Technology used: **Python, AWS Microservices, Twilio SMS API, Alexa SDK**.
- Received 'special mention' award.

Mining Stack Overflow to Explore Developers' Security Challenges

CS, K-State

M.S. PROJECT

Aug. 2016 - Dec. 2016

- Applied topic-modeling on Stack Overflow data to explore and analyze challenges, misconceptions, and deterrents among developers while they try to design and build security features during various phases of software development life cycle.
- Defined and implemented metrics to identify key discussion topics related to software security and overlapping areas.
- Analyzed the nature and trends of *security-related* posts in Stack Overflow both quantitatively and qualitatively. Tool used: **R**.

Risk Prediction from Data Breach Incident Report

CS, K-State

TEAM LEAD FOR COURSE PROJECT (PATTERN RECOGNITION AND MACHINE LEARNING)

Mar. 2016 - May. 2016

- Utilized data breach incident reports from VERIS Community Database (VCDB) as data source and **verisr**, an open-source R package for working with VERIS framework.
- Trained and tested a sequence of classifiers in order to calculate risk assessment and prediction of an organization, given its size and business nature.

Cross-cultural Study of Security Perceptions of Different Payment Methods

Cyber Security Lab, K-State

RESEARCH PROJECT

May. 2015 - Dec. 2015

- Collaborated with research team from University College London, UK.
- Conducted a series of semi-structured interviews and coded the transcriptions using thematic analysis.
- Analyzed and compared US and UK participants' data and elicited commonalities and differences that may help better understand, if not predict, attitudes of US consumers once technologies like Chip-and-PIN are rolled out.
- Published in **USEC 2016**.

'Trusted Tweets': Measure Trust and Informativeness in Twitter Crisis Data

CS, K-State

M.S. COURSE PROJECT FOR DATABASE MANAGEMENT SYSTEMS

Mar. 2015 - May. 2015

- Proposed a trust scoring mechanism based on two different twitter crisis datasets: '2013 Boston Bombing' dataset as an example of Human-induced disaster and '2013 Australian Bushfire' dataset as an instance of natural disaster.
- Analyzed frequency and trending of tweets over time using **Java, MySQL and Apache Pig-Latin**.

MobiAd:Location-based Mobile Advertisement

Dhaka, Bangladesh

ENTREPRENEURSHIP CONTEST 2011

2011

- Coordinated and presented business plan with SWOT analysis, milestones and ROIs for a location-aware intelligent Mobile advertisement platform.
- **Champion** in *SpaandanB Entrepreneurship Contest-2011* for unique and innovative business ideas.

MobiCASH:Flexible Payment Solution

Dhaka, Bangladesh

NATIONAL SOFTWARE DEVELOPMENT CONTEST

2010

- Designed and implemented a prototype of SMS push-pull based mobile payment system to deliver payment facilities through basic feature phones for farmers living in rural, resource constrained areas. Technology used: **J2ME, PHP and MySQL**.
- Received 'special mention' in *E-Content and ICT for Development Contest-2010 and Financial IT Case Competition-2010*.

SMS Based Intelligent Blood Donation System

CSE, BUET

UNDERGRAD PROJECT

2010

- Designed and implemented a prototype for SMS push-pull based blood donor recruitment, management, available donor query and information retrieval system for developing regions. Technology used: **Java, PHP and MySQL**.
- This work was published in **AINA 2011** conference.

Publications

- D. Oliveira, T. Lin, **Muhammad Sajidur Rahman**, R. Akefirad, D. Ellis, E. Perez, L. A. DeLong, J. Cappos, Y. Brun, N. Ebner. "API Blindspots: Why Experienced Developers Write Vulnerable Code." *To appear in Proceedings of the 14th Symposium on Usable Privacy and Security (SOUPS 2018)*.
- **Muhammad Sajidur Rahman**, "An Empirical Case Study on Stack Overflow to Explore Developers' Security Challenges." *Masters Report*.
- Kat Krol, **Muhammad Sajidur Rahman**, S. Parkin, E. D. Cristofaro and E. Y. Vasserman. "An Exploratory Study of User Perceptions of Payment Methods in the UK and the US." *In Proceedings of the 10th NDSS Workshop on Usable Security (USEC 2016)*.
- **Muhammad Sajidur Rahman**, "An Efficient PKI for Secure Commerce Using Basic Phones." *In 20th Annual K-State Research Forum (KRF), Poster Presentation, March 31, 2015*.
- **Muhammad Sajidur Rahman**, K. A. Akter, S. Hossain, A. Basak and S. I. Ahmed, "Smart Blood Query: A Novel Mobile Phone Based Privacy-Aware Blood Donor Recruitment and Management System for Developing Regions," *In Proceedings of 2011 IEEE Workshops of International Conference on Advanced Information Networking and Applications*.

Honors & Awards

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| 2018 | Best Poster Award , FICS Research Annual Conference on Cybersecurity, University of Florida | Gainesville, Fl |
| 2017 | Travel Grant , To attend Conference on Secure Development (SecDev'17) | Gainesville, Fl |
| 2015-2016 | Graduate Fellowship Award , College of Engineering, Kansas State University | Manhattan, KS |
| 2015 | Best Graduation Display Award , Open House Day, Dept. of CS | Manhattan, KS |
| 2011 | Champion , SpaandanB Entrepreneurship Contest | Dhaka, Bangladesh |
| 2010 | Finalist , E-Content and ICT for Development | Dhaka, Bangladesh |
| 2005-1010 | Merit Scholarship , Outstanding result in Higher Secondary School Certificate Exam | Bangladesh |
| 2004 | Finalist , National Math Olympiad | Dhaka, Bangladesh |
| 2003-2005 | Merit Scholarship , Outstanding result in Secondary School Certificate Exam | Bangladesh |