

Muhammad Sajidur Rahman

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Profile Summary

- Computer Science Graduate with a passion for 'build security in' mentality for software design and development. Looking for full-time software engineering position to solve new challenges.
- 3.5+ years extensive working experience as a Software Engineer in mobile payment industry, SaaS in general.
- Proven skills on backend engineering, RESTful API design, new product/feature development, team leadership, and research in technology stack to skillfully apply and produce effective development approaches.
- Technology-agnostic, adaptive learner. Ready to hit the ground running and produce results.

Research and Professional Experience

Florida Institute for Cybersecurity Research (FICS)

University of Florida

GRADUATE RESEARCH ASSISTANT

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

Kansas State University

GRADUATE RESEARCH ASSISTANT

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

Kansas State University

GRADUATE TEACHING ASSISTANT

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.

Dhaka, Bangladesh

SENIOR SOFTWARE ENGINEER

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.
- Technology used: **Java, MSSQL, RabbitMQ.**

Progoti Systems Limited (FinTech company)

Dhaka, Bangladesh

SENIOR SOFTWARE ENGINEER

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.
- Designed and implemented RESTful architecture which handles core business logic, profile based transaction processing, event logging, notification handling and facilitates scalability, secure authentication, authorization and role based privilege delegation support for different access channels (Web, SMS, USSD, Mobile Apps) as well as third-party modules, to list a few.
- Engineered a middle tier RESTful application server to connect USSD gateway and core service engine, *Profino*.
- Spearheaded the design and development of inter-bank transactions and real-time gross settlement system that helped increase inter-bank transactions over 60% in first year after deployment.
- 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.
- Participated regularly in client meetings and business development team meetings.
- Headed teams in security auditing, code reviewing, testing and release engineering.
- Helped maintain security posture of the company by analyzing PCI standard security guidelines and formulating security best practices to adhere with Central Bank regulations.
- Technology used: **Spring Framework, PHP, MySQL/Oracle.**

Prime Bank Limited

Dhaka, Bangladesh

INFORMATION TECHNOLOGY ENGINEER

Mar. 2011 - Feb. 2012

- 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%.
- Designed and implemented a RESTful service engine for a J2ME m-banking prototype.
- Technology used: **Spring Framework, JasperReport, J2ME, MS-SQL/MySQL.**

Enosis Solutions Limited

Dhaka, Bangladesh

SOFTWARE ENGINEERING INTERN

Nov. 2010 - Jan. 2011

- 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.**

Skills

Programming Languages	Java, C/C++ (advanced); Python, C# (moderate); R, SML (prior experience)
Frameworks	Spring, Grails, JavaEE(Servlet/JSP), Hibernate (advanced)
Web/Mobile Technologies	REST/SOAP, JSON/XML, Jasper (advanced to moderate); PHP, JS, Node.js, HTML5, Android, J2ME (prior experience)
Cloud Computing	Amazon EC2, RabbitMQ (prior experience)
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)
Version Control	Git (advanced)
User-Centered Design	Experiment design, Usability analysis, Qualitative & Quantitative Data analysis, Survey & Interview design (advanced)

Academic Projects/Sidekicks

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.
- Analyzed the nature and trends of *security-related* posts in Stack Overflow both quantitatively and qualitatively. Tool used: **R.**

'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 tweets 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

SENIOR YEAR 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.

Education

Kansas State University

Manhattan, KS

M.S. IN COMPUTER SCIENCE

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)

Dhaka, Bangladesh

B.S. IN COMPUTER SCIENCE AND ENGINEERING

Graduated in January, 2011

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

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 Technical 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

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