Muhammad Sajidur **Rahman**

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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.

Skills

Programming	Java, Python, PHP, C/C++, R, SML
Web Frameworks	Spring, Grails, JavaEE(Servlet/JSP)
Big Data Technologies	Apache Hadoop, Apache Spark, Apache Pig
Pen Testing Tools	Metasploit, Kali Linux, Windbg

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 Nodejs for enhanced data logging and exception handling, which reduced audio-data loss from 30% to 4%.
- Currently investigate: **i)** developers' 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 architecture for a SaaS based Educational ERP.
- 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*
LEAD 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 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 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*

- Centralized the information-processing system (from data extract, transform and load to real time financial report generation and view) for corporate/retail banking/credit card divisions which helped increase their efficiency in decision making and policy planning over 50%.
- Implemented overall application logic and programmed RESTful API server for a m-banking prototype.
- Technology used: **Spring Framework, JasperReport, J2ME, MSSQL/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**.

Academic Projects

Identifying Developer Blind Spots and Designing Developer-centric Tools *FICS, UF*
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.
- Prototyping a source code linting tool based on SonarQube Rule engine.
- The results from first phase of the study *(API blindspots in strongly typed programming languages)* is published in **SOUPS 2018** conference.

Mining Stack Overflow to Explore Developers' Security Challenges *CS, K-State*
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.
- Technical report available here http://tiny.cc/msreport .

Cross-cultural Study of Security Perceptions of Different Payment Methods *Cyber Security Lab, K-State*
May. 2015 - Dec. 2015

- Collaborated with research team from University College London, UK.
- Conducted a series of semi-structured interviews, coded the transcriptions and reviewed literature.
- 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**.

SIM as Trusted Element for Secure M-Commerce *Cyber Security Lab, K-State*
Jan. 2015 - May 2015

- Researched, reviewed and compared prior work on Public Key Infrastructure(PKI) in the context of mobile payments in resource constrained environments.
- Proposed a lightweight model of PKI, leveraging Subscriber Identity Module(aka SIM card) as a trusted element to bootstrap security, along with providing sufficient computational power to secure transactions by using modern cryptographic features.
- **Best Poster Award** in Annual K-State Open House Day.

'Trusted Tweets': Measure Trust and Informativeness in Twitter Crisis Data *CS, K-State*
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**.

Study of Effective and Usable SSL Warnings   *Cyber Security Lab, K-State*
                                                                  Aug. 2014 - Dec. 2015

- Replicated and extended default SSL warnings found in different browsers and investigated the effectiveness of SSL warnings.
- Examined and analyzed end users' mental model of web security and tried to determine which attributes would be most appropriate to apply to web-based threats.

MobiCASH:Flexible and Easiest Payment Solution   *CSE, BUET*
                                                                                     2010

- Designed and implemented a prototype of mobile payment system to deliver payment facilities 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*
                                                                                     2010

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

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*
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	**Merit Scholarship,** Higher Secondary School Certificate Exam	*Bangladesh*
2004	**Finalist,** National Math Olympiad	*Dhaka, Bangladesh*
2003	**Merit Scholarship,** Secondary School Certificate Exam	*Bangladesh*

Profile Summary ───────────────────────────────────────

Computer Science Student with a passion for 'build security in' mentality for software design and development. 4+ years extensive working experience as a Software Engineer in mobile payment industry, SaaS in general. Proven skills on project management, team leadership, organization and research with an academic background focused in cross-cutting areas: human-centered security & privacy design, software engineering and ubiquitous, social computing. Ready to hit the ground running and produce results.