Samin Yaseer Mahmud

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Education

- **North Carolina State University** — Raleigh, NC
  Ph.D in Computer Science — *2018-2023 (Expected)*
  - **Research Interest**: Software Security, Mobile Security, Privacy
  - **Adviser**: William Enck
- **Bangladesh University of Engineering and Technology (BUET)** — Dhaka, Bangladesh
  Bachelor of Engineering in Computer Science and Engineering — *Graduated March, 2016*
  - **CGPA**: 3.75/4.00
  - **Major CGPA**: 3.81/4.00
  - **Awards**: Dean's List, University Merit Scholarship

Academic Experience

- **Graduate Research Assistant** — NCSU WSPR Lab
  May 2019 - Present
  - **Cardpliance**: Cardpliance is a static analysis tool to detect PCI DSS violation in credit card asking android applications. It first generates a data dependency graph of the code and then performs taint tracking of sensitive financial data (i.e credit card number, CVC) to identify violation of requirements specific to the document PCI DSS v3.2. Our study found the landscape of such consumer applications from Google Play is fairly positive. An academic paper for this work was accepted at **2020 USENIX Security Symposium**.
  - **Security analysis of Payment SDKs in Android**: This is an ongoing project and in this project I am extending existing vulnerability scanners to look for android specific vulnerabilities in libraries that are used for payment processing.
  - **PolicyLint**: Policy Lint is a tool that uses NER to extract entities (i.e advertisers, third party companies) and data (i.e personal information, email) from privacy policies to build an ontology. It later uses NLP to perform entity sensitive analysis on the privacy policy of android applications to find internal inconsistencies. Our academic paper for this project was accepted at **2019 USENIX Security Symposium.**
  - **PoliCheck**: PoliCheck is a tool that validates if the data sharing practice of an android application is consistent with its privacy policy. We extend our work PolicyLint and provide it with data flows observed by a large scale dynamic analysis to detect such violation. Our academic paper for this project was accepted at **2020 USENIX Security Symposium.**
  - **AARDroid**: This is my current research project. The goal is to build a static analysis tool to analyze library files (.aar) in Android and do a measurement study on existing popular mobile payment SDKs.
- **Graduate Teaching Assistant** — NCSU, Raleigh, NC
  August 2018 - May 2019
  - **C Programming and Tools**: Dr. William Enck, Spring Semester, 2019
  - **Operating Systems**: Dr. David Sturgill, Fall Semester, 2018

Industry Experience

- **PayPal** — Scottsdale, Arizona
  Information Security Intern — *May 2021 - August 2021*
  - **Investigating misuse of mobile payment SDK**: Worked as a research intern for the Threat Management team to identify and measure several ways PayPal's in house mobile Payment SDKs could be misused in both Android and iOS ecosystem.
- **KONA Software Lab** — Dhaka, Bangladesh
  Software Engineer — *March 2016 - July 2018*
  - **Digital Financial System (Nagad)**: Nagad is a digital financial service that allows its users to withdraw, deposit or transfer money through a mobile app or USSD. This project is currently serving thousands of customers in Bangladesh.
  - **Nexus Pay**: Nexus Pay is a payment solution which allows its user to virtually register his credit/debit card on his mobile application and pay simply by scanning QR code on merchant points.

Publications

- **Samin Yaseer Mahmud**, Akhil Acharya, Benjamin Andow, William Enck and Bradley Reaves, Cardpliance: PCI DSS Compliance of Android Applications, *In Proceedings of the USENIX Security Symposium, Boston, MA, USA, 2020*
- Benjamin Andow, **Samin Yaseer Mahmud**, Justin Whitaker, Serge Egelman, William Enck, Bradley Reaves and Kapil Singh, Actions Speak Louder than Words: Entity-Sensitive Privacy Policy and Dataflow Analysis with PoliCheck, *In Proceedings of the USENIX Security Symposium, Boston, MA, USA, 2020*
- Benjamin Andow, **Samin Yaseer Mahmud**, Wenyu Wang, Justin Whitaker, William Enck, Bradley Reaves, Kapil Singh, and Tao Xie, PolicyLint: Investigating Internal Privacy Policy Contradictions on Google Play, *In Proceedings of the USENIX Security Symposium, Santa Clara, CA, 2019.*
- **Mahmud SY**, Snigdha F, Rakin AS, Development of a Novel Method for Automatic Detection of Musical Chords, *In Scientific Modelling and Research 3 (1), 15-22*, March 2018

Workshops

- **Android App Developement:** Conducted the Android App Developement Bootcamp in Diamond Hacks 2021 to teach the basics of Android framework, components, lifecycle and app developement.

Technical Skills

- **Language:** Java, Python, C/C++, Swift, Scala
- **Analysis Framework:** Amandroid, Flowdroid, UiRef, QARK, Androdguard, Wireshark, LibScout
- **Reverese Engineering:** APKTool, JADX, Byteviewer, JEB, Frida-iOS, Hopper
- **Mobile & Web:** Android, Javascript, Php, MySQL, HTML, CSS
- **Others:** Git, Linux, Latex