DILAWER AHMED

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EDUCATION

North Carolina State University — Raleigh, NC
PhD Computer Science *GPA: 4.0* — Jan 2021 - May 2025
Courses: *Cryptography, Compiler Construction, Computer and Network Security, Operating Systems*

Lahore University of Management Sciences — Lahore, Pakistan
BS Computer Science — Aug 2016 - May 2020

EXPERIENCE

North Carolina State University — Raleigh, NC
Graduate Research Assistant — Jan 2021 - Present

- Published a paper on the privacy implications of the Adblock Plus' Acceptable Ads Initiative to the 6th ACM ASIA Conference on Computer and Communications Security.
  https://dl.acm.org/doi/abs/10.1145/3433210.3437536

- Published a paper as lead author on the security and privacy on Internet of Things devices and fingerprinting them through encrypted network traffic using Machine Learning and evaluations in open-world and real-world settings. Paper is set to appear in 22nd Privacy Enhancing Technologies Symposium (PETS).
  https://anupamdas.org/paper/PETS2022.pdf

KalPay Financials — Lahore, PK
Chief Technology Officer & Co-founder — May 2020 - Dec 2020

- Led the technology division of the company to create the user, merchant and admin full stack applications that powers a funded startup working in FinTech industry in Pakistan

- Created TensorFlow Machine Learning models to facilitate credit decisions and used Node.js, Vue, AWS, MongoDB to create applications

Technology for People Initiative Lab — Lahore, Pakistan
Software Engineer — June 2020 - Dec 2020

- Led the team of 3 students to detect fake reviews on e-commerce platforms such as Amazon. Collected a dataset of product reviews and making use of another public dataset analyzed the existence of fake reviews from automated text generation services such as GPT-2. Submitted the paper to a top security conference

- Converted existing single-threaded libraries, used by the university to make services, in C language to parallel programming paradigm and achieved a speed-up of up to 30x in some functions.

PROJECTS

Android Systems *C/C++, Android Studio, Linux Kernel*
A kernel level android tool that improves memory performance applications on low-end devices. Using different heuristics tweaked different kernel level values of kswapd and lmkd on a per application and phone bases improved the performance of popular apps such as web browsers.

Web Application Development *Vue, GCP, Express, Node.js, MongoDB, REST, Chai, Mocha, TensorFlow, Python*
A cloud-based car insurance application for a multi-national company that aids the decision making process by replacing the traditional risk-assessment model with a data-driven system

Penetration Testing *Mitmproxy, Wireshark, Nmap, Postman*
Analyzed the attack surface of top android apps in Pakistan region on App store for vulnerabilities through tools such as Wireshark, Nmap and Mitmproxy. Found multiple critical bugs and security flaws which enabled account hijacking and sensitive information leaked. Reported 7 critical vulnerabilities in a top food ordering application and got bug bounties

Systems *LLVM, C/C++, YAML, OS Kernels*
Achieved binary debloating of OS Kernel applications. Adapted existing software debloating tool to Kernel level programs and created heuristics to change insecure code patterns to secure code patterns. Reduced the attack surface of programs and made Kernels more suited to specific deployments