Muhammad Ibrahim, Ph.D.

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WORK EXPERIENCE

Purdue University, West Lafayette   *August 2019 - Present*
Research Assistant, Advised by Dr. Antonio Bianchi (UCSB)

- Developed tools and techniques to scale and automate the analysis of millions of apps
- Received the **Google ASPIRE** Award in 2021, 2022, and 2023 for collaboration with Google
- Performed **reverse engineering** using Frida, Jadx, Soot, Ghidra, WireShark, apktool
- Conducted research on **Android app attestation** and tampering techniques
- Studied interaction between mobile devices, smartwatches and **IoT devices**
- Analyzed Android **radio frequency** protocols including Bluetooth, NFC, ANT, WiFi
- Performed security analysis of **LLMs** in the context of mobile devices
- Earned multiple confidential **bug bounties** and discovered CVE-2023-33768
- Participated in several **Capture The Flag** competitions, qualified for **DEFCON 30 Finals**

EDUCATION

Purdue University, West Lafayette   *August 2019 - 2024 (Expected)*
PhD, Computer Science

LUMS School of Sciences & Engineering, Pakistan   *July 2015 - June 2019*
BS, Computer Science

Relevant Courses: Software/Information/Mobile/Network Security, Operating Systems, Computer Networks, Distributed Systems, Software Engineering, Deep Learning, Data Structures, Algorithms

PUBLICATIONS

- **Muhammad Ibrahim**, Abdullah Imran, Antonio Bianchi. SafetyNOT: On the usage of the SafetyNet attestation API in Android. MobiSys 2021
- Abdullah Imran, Habiba Farrukh, **Muhammad Ibrahim**, Z. Berkay Celik, Antonio Bianchi. SARA: Secure Android Remote Authorization. USENIX Security 2022 Fall
- **Muhammad Ibrahim**, Andrea Continella, Antonio Bianchi. AoT - Attack on Things: A security analysis of IoT firmware updates. Euro S&P 2023
- Doguhan Yeke, **Muhammad Ibrahim**, Habiba Farrukh, Abdullah Imran, Antonio Bianchi, Guliz Seray Tuncay, Z. Berkay Celik. Wear's my Data? Understanding the Cross-Device Runtime Permission Model in Wearables. S&P 2024

TALKS AND PRESENTATIONS

- July 2024: Presentation at CyberAuto Challenge 2024 (Warren, MI)
- May 2024: Paper presentation at the 45th IEEE S&P (San Francisco, CA)
- July 2023: Paper presentation at the 8th IEEE European S&P (Delft, Netherlands)
- June 2023: Presentation at CyberTruck Challenge 2023 (Warren, MI)
- April 2023: Poster presentation at MITRE eCTF Award Ceremony (McLean, VA)
- October 2022: Speaker at Google ASPIRE Research Seminar (Virtual)
- July 2021: Paper presentation at the 19th ACM MobiSys (Virtual)

ADDITIONAL SKILLS

- **Programming Languages:** Python, Java, Smali, Golang, C++, C, C#, JS, Haskell, Rust, SQL
- **Software:** Linux, Android, GCP, Frida, Jadx, Ghidra, IDA, WireShark, gdb, Unity, Firebase

- **Spoken Languages:** English, Urdu, Punjabi, Hindi

PROFESSIONAL SERVICES

External Reviewer

- Research in Attacks, Intrusions and Defenses (RAID 2023)
- IEEE Security and Privacy (S&P 2024)

Artifact Evaluation Committee

- EuroSys (2023)
- Workshop On Offensive Technologies (2023)

LEADERSHIP, DIVERSITY, AND OUTREACH ACTIVITIES

President - CS Graduate Student Government (CSGSA), Purdue

- Served as the president for the year 2023 - 2024
- Led a team of 20 officers, managing the needs and activities of 500 graduate students
- Increased funding and introduced new training programs, workshops, and events
- Revitalized branding through redesigned promotional materials, T-shirts and official logo
- Organized logistical arrangements for the CS remote campus in Indianapolis

Event Head - Science Promotion Society (SPADES), LUMS

- Organized a national programming event (2016 - 2017)
- Coordinated a team of 10 people managing a competition of 200 people
- Designed and conducted engaging programming exercises
- Achieved Immense Contribution Award

AWARDS AND HONORS

- Winner, Idaho National Laboratory CTF CyberAuto 2024
- Winner, NXP DevKit for CyberTruck 2023
- Google ASPIRE Award 2021, 2022, 2023
- Travel Grant, European Security and Privacy 2023
- Best Poster, MITRE Embedded Capture The Flag 2023