ERTZA WARRAICH

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 West Lafayette, IN (765)-233-2644

Networking & systems researcher with industry experience of ~5 years

EDUCATION

Purdue University, USA   *Jan 2020 - Present*
Ph.D. Computer Science
- Advisor: Prof. Muhammad Shahbaz
- Research: Systems, AI/ML, and Security

NUST, Pakistan
M.S. Computer Science   *Sept 2017 - June 2019*
- Advisor: Prof. Syed Taha Ali
- Thesis: Intelligent botnet that uses AI for evasion

B.E. Software Engineering   *Sept 2012 - June 2016*
- Thesis: An autonomous network-monitoring tool

ACADEMIA EXPERIENCE

Dept. of CS, Purdue University   *Jan 2024 - May 2024*
Teaching Assistant
- CS 180 Programming I (Fall 2024)
- CS 348 Information Systems (Spring 2024)

NextGArch Lab, Purdue University   *Aug 2021 - Dec 2023*
Research Assistant
- Architectures and systems for large-scale ML training

PurSec Lab, Purdue University   *Jan 2020 - Aug 2021*
Research Assistant
- Fingerprinting and fuzzing linux/windows kernel subsystems

INDUSTRY EXPERIENCE

Hewlett Packard Enterprise   *June 2023 - Dec 2023*
Research Associate Intern
- Profiling inter- and intra-node connects for efficient ML communication patterns
- Leveraging network-awareness for improved LLM workload distributions

NVIDIA Corporation   *May 2022 - Sept 2022*
Advance Dev. Research Intern
- Optimizing communication collectives for large-scale ML training
- Analysis of HPC environments with Ethernet and RDMA for ML training performance

National Research Organization   *May 2018 - Jan 2020*
Assistant Manager
- Developed an AI-based pro-active threat-intelligence framework
- Deployment, analysis & management of custom honeypots

Ebryx Pvt. Ltd.   *June 2016 - Aug 2017*
Malware Researcher
- Developed an evasive-exploits kit for cyber-attack POCs
- FP/FN analyses of FireEye and various network security devices

PUBLICATIONS

arXiv. Ultima: Robust and Tail-Optimal AllReduce for Distributed Deep Learning in the Cloud. *Ertza Warraich*, Omer Shabtai, Khalid Manaa, Shay Vargaftik, Yonatan Piasetzky, Matty Kadosh, Lalith Suresh, Muhammad Shahbaz. arXiv:2310.06993. Preprint 2023

OSDI 2022 (Poster). Ultima: Robust and Tail-Optimal All-Reduce for Distributed Deep Learning. *Ertza Warraich*, Leonard Liu, Omer Shabtai, Yonatan Piasetzky, Shay Vargaftik, Matty Kadosh, Lalith Suresh, Muhammad Shahbaz. Carlsbad, CA. July 2022

IEEE S&P 2022. Hybrid Stateful Fuzzing of USB Gadget Stacks. Kyungtae Kim, Taegyu Kim, *Ertza Warraich*, Byoungyoung Lee, Kevin Butler, Antonio Bianchi, Dave Tian. San Francisco, CA. May 2022

SIGCOMM 2021 (Poster). Constructing the Face of Network Data. *Ertza Warraich*, Muhammad Shahbaz. Virtual Online. August 2021

ACADEMIC SERVICES

Program Committee Member - NSDI 2025

CERTIFICATIONS

Cisco: NDG Linux Essentials, Introduction to Cybersecurity

AWS & ML Certifications: AWS Hadoop Fundamentals, NVIDIA DLI: Fundamentals of Deep Learning

Security Certifications from Nessus, Fortinet, and Binalyze

AWARDS

- Bachelor's Gold Medalist (1 out of 150 students)
- Awarded Overall Best Student in NUST (1 out of 800 students)

REFERENCES

Dr. Muhammad Shahbaz
Assistant Professor, Dept of Computer Science, Purdue University   mshahbaz@purdue.edu

Dr. Sonia Fahmy
Professor and Assoc. Head, Dept of Computer Science, Purdue University   fahmy@purdue.edu

Dr. Lalith Suresh
CEO and Co-founder, Feldera   lalith.suresh@gmail.com

Dr. Shay Vargaftik
Senior Researcher, Broadcom   shay.vargaftik@broadcom.com