Priscilla Kyei Danso

PhD STUDENT · Computer Science
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Education

Stony Brook University, New York, USA. September 2023 - Present
Doctor of Philosophy in Computer Science (PhD)
University of New Brunswick, Fredericton, Canada May 2021 - May 2023
Master of Computer Science (MCS)
Thesis: Transferability of Machine Learning Model for IoT device Identification and Vulnerability Assessment.
Kwame Nkrumah University of Science and Techn., Kumasi, Ghana. September 2012 - June 2016
Bachelor of Science Computer Engineering
Project Title: An Integrated Messaging Platform for an Enterprise Environment

Research Interests

Internet of Things (IoT) devices, Anomaly Detection using Machine Learning; Vulnerability assessment, Data analysis

Publications

[1] Priscilla Kyei Danso, Sajjad Dadkhah, Euclides Carlos Pinto Neto, Alireza Zohourian, Heather Molyneaux, Rongxing Lu, and Ali A Ghorbani. Transferability of machine learning algorithm for IoT device profiling and identification. *IEEE Internet of Things Journal*, 11(2):2322–2335, 2024.

[2] Priscilla Kyei Danso, Euclides Carlos Pinto Neto, Sajjad Dadkhah, Alireza Zohourian, Heather Molyneaux, and Ali A Ghorbani. Ensemble-based intrusion detection for internet of things devices. In *2022 IEEE 19th International Conference on Smart Communities: Improving Quality of Life Using ICT, IoT and AI (HONET)*, pages 034–039, 2022.

[3] Priscilla Kyei Danso, Heather Molyneaux, Alireza Zohourian, Euclides Carlos Pinto Neto, Derrick Whalen, Sajjad Dadkhah, and Ali A Ghorbani. Human-Centric machine learning: The role of users in the development of IoT device identification and vulnerability assessment. In *HCI for Cybersecurity, Privacy and Trust: 5th International Conference, HCI-CPT 2023, Held as Part of the 25th HCI International Conference, HCII 2023, Copenhagen, Denmark, July 23–28, 2023, Proceedings*, pages 622–642, Berlin, Heidelberg, 2023. Springer-Verlag.

[4] Sajjad Dadkhah, Hassan Mahdikhani, Priscilla Kyei Danso, Alireza Zohourian, Kevin Anh Truong, and Ali A Ghorbani. Towards the development of a realistic multidimensional IoT profiling dataset. In *2022 19th Annual International Conference on Privacy, Security & Trust (PST)*, pages 1–11, 2022.

[5] Alireza Zohourian, Sajjad Dadkhah, Euclides Carlos Pinto Neto, Hassan Mahdikhani, Priscilla Kyei Danso, Heather Molyneaux, and Ali A Ghorbani. IoT zigbee device security: A comprehensive review. *Internet of Things*, 22:100791, 2023.

Research Experience

- Engineered a system utilizing machine learning to profile IoT device types within a network while concurrently evaluating and visualizing the vulnerabilities associated with these devices.
- Collaborated with a team to publish an IoT dataset, aiming to facilitate the efforts of researchers specializing in the identification of IoT devices.
- Formulated and executed the implementation of an ensemble-based Intrusion Detection System (IDS), specifically designed for anomaly detection within an IoT infrastructure.
- Conducted extensive research on Internet of Things (IoT) devices, exploring potential vulnerabilities and implementing various efficient mitigation strategies. Executed experiments and thoroughly documented the results.

Awards and Scholarships

- iMentor scholarship for ACM CCS conference in Copenhagen, Denmark, sponsored by NSF, 2023.
- Academic Scholarship, University of New Brunswick, Faculty of Computer Science Funding, 2021
- Institute for Analytics and Data Science Summer School Scholarship, University of Essex, 2020
- Academic Scholarship, Newmont Ahafo Development Foundation (NADeF), 2016.

Technical Skills

Programming: Python, LaTeX; Data analysis: Pandas, Scikit-learn; Research skills; Technical writing skills.