Priscilla Kyei Danso

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Research Interest

- **Formal Methods, Natural Language Processing, Machine Learning**
  Neural-symbolic reasoning, trustworthy AI, and translation between natural language and formal logic (LTL, FOL)

Education

- **Stony Brook University** — **Stony Brook, NY, USA**
  Ph.D. in Computer Science, Department of Computer Science — *Aug. 2023 – Present*
  - **Advisor**: Dr. Omar Chowdhury
  - **Research Area**: Formal verification, Privacy compliance, and LLM-based specification synthesis
- **University of New Brunswick** — **Fredericton, Canada**
  M.Sc. in Computer Science, Faculty of Computer Science — *May 2021 – May. 2023*
  - **Advisor**: Dr. Ali Ghorbani
  - **Thesis**: Transferability of Machine Learning Algorithms for IoT Device Profiling and Identification
- **Kwame Nkrumah University of Science and Technology** — **Kumasi, Ghana**
  B.Sc. in Computer Engineering, College of Engineering — *Sep. 2012 – Jun. 2016*
  - **Project**: An Integrated Messaging Platform for an Enterprise Environment

Research and Industry Experience

- **Formal Verification and Security Group, Stony Brook University** — **New York, USA**
  Graduate Research Assistant — *Aug. 2023 – Present*
  - **Advisor**: Dr. Omar Chowdhury
  - Lead researcher on evaluating large language models for natural language–to–Linear Temporal Logic (LTL) translation.
  - Designed multi-dimensional benchmarks to assess semantic equivalence, satisfiability, and trace-based verification.
  - Designing a typed intermediate representation for translating natural language into FOL for theorem proving
  - Currently formalizing privacy compliance (HIPAA, GDPR, SOX, GLBA) using logic-based frameworks and LLM agentic reasoning.
- **Canadian Institute for Cybersecurity, University of New Brunswick** — **Fredericton, Canada**
  Graduate Research Assistant — *May. 2021 – Dec. 2022*
  - **Advisor**: Dr. Ali Ghorbani
  - Conducted applied machine learning research on IoT device profiling and intrusion detection.
  - Built and released realistic IoT profiling datasets and ensemble-based detection pipelines.

Peer-Reviewed Conference Publications

(* denotes equal contribution)

[C1] **Danso, P.K.**, et al., "A Multi-dimensional Evaluation of LLMs in Translating Natural Language to LTL". In *International Conference on Fundamental Approaches to Software Engineering* (FASE 2026) (Under Review)

[C2] Dadkhah, S., Mahdikhani, H., **Danso, P.K.***, et al., "Towards the Development of a Realistic Multidimensional IoT Profiling Dataset". In *IEEE Privacy, Security and Trust* (PST 2022) (With over 220+ citations)

[C3] **Danso, P.K.**, Dadkhah, S., Neto, E.C.P., et al., "Transferability of Machine Learning Algorithms for IoT Device Profiling and Identification". In *IEEE Internet of Things Journal* (IoT-J 2023)

[C4] **Danso, P.K.**, Neto, E.C.P., Dadkhah, S., et al., "Ensemble-based Intrusion Detection for Internet of Things Devices". In *IEEE Smart Communities* (HONET 2022)

[C5] **Danso, P.K.**, et al., "LLM-based Anomaly Detection for Digital Substation Cybersecurity". In *IEEE Smart Communities* (HONET 2025) (To appear December 2025)

[C6] **Danso, P.K.**, et al., "Human-centric Machine Learning for IoT Device Identification and Vulnerability Assessment". *HCI International 2023*

[C7] Zohourian, A., Dadkhah, S., Neto, E.C.P., Mahdikhani, H., **Danso, P.K.**, et al., "IoT Zigbee Device Security: A Comprehensive Review". *Elsevier Internet of Things Journal 2023*

Teaching Experience

- **Teaching Assistant, ISE331 Fundamentals of Computer Security, *Stony Brook University*** **New York**
  Assisted in lab instruction, grading, and office hours *Jan. 2024 – Apr. 2024*
- **Teaching Assistant, CSE331 Computer Security Fundamentals, *Stony Brook University*** **New York**
  Collaborated on assignments, held office hours, proctored and graded *Aug. 2023 – Dec. 2023*

Honors and Awards

- **Thirteenth Summer School on Formal Techniques + FMiTF Bootcamp** **Sponsored by NSF**
  Student travel / participation award *May 2024*
- **CPS-IoT Week 2024 Student Travel Award** **Hong Kong (NSF-sponsored)**
  Student travel award to attend CPS-IoT Week *April 2024*
- **iMentor Scholarship for ACM CCS** **Copenhagen, Denmark (NSF-sponsored)**
  Student travel scholarship to attend ACM CCS *November 2023*
- **Academic Scholarship, University of New Brunswick** **Fredericton, Canada**
  Faculty of Computer Science Funding *May 2021*
- **Institute for Analytics and Data Science Summer School Scholarship** **University of Essex**
  Student scholarship to attend summer school *July 2020*
- **Academic Scholarship, Newmont Ahafo Development Foundation (NADeF)** **Ghana**
  Merit-based undergraduate scholarship *September 2016*

Professional Service

- **Paper Reviewer**
  IEEE Internet of Things Journal *2023–Present*
- **Artifact Reviewer**
  ACM CCS (2024, 2025); USENIX Security (2025)
- **Mentor**
  Women in Computer Science, Stony Brook University *2024–Present*