

Tarini Saka

PostDoctoral Researcher, AI and Cybersecurity

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EDUCATION

- **University of Edinburgh** Edinburgh, UK
PhD, Artificial Intelligence and Applications Institute *Apr. 2021 – Nov. 2024*
- **Indian Institute of Science Education and Research** Thiruvananthapuram, India
Master and Bachelor of Science, School of Mathematics *Aug. 2015 – July. 2020*

RESEARCH EXPERIENCE

- **Phishing Campaign Detection** Edinburgh, UK
University of Edinburgh *September 2021 - September 2024*
 - **Goal:** Created a context-aware clustering tool, leveraging HTML parsing and language models, to identify phishing campaigns. Designed to support security personnel in effectively managing large-scale phishing attacks.
 - **Skills:** HTML parsing (BeautifulSoup), Language Models (SentenceTransformer, BERT, HuggingFace), Graph-based Semi-Supervised Learning
- **PhishEd: AI-assisted User Guidance** Edinburgh, UK
University of Edinburgh *March 2022 - September 2024*
 - **Goal:** REPHRAIN funded project to develop a novel phishing-advice tool which accepts reported phishing emails from users, uses AI to parse out contextual features, and quickly responds back to the user with advice based on the content of the email. Supervised by Dr. Kami Vaniea, and Dr. Nadin Kokciyan.
 - **Skills:** Human-centered design, Assisted in organizing and conducting focus groups, Collaborated and coordinated with members of a multidisciplinary team, Designing a survey to evaluate the usability of the tool (Qualtrics).
- **PhishCoder** Edinburgh, UK
Human-centered Artificial Intelligence (CHAI) Lab, University of Edinburgh *October 2023 - September 2024*
 - **Goal:** Developing an intelligent tool to efficiently extract crucial information from phishing emails.
 - **Skills:** Fine-tuning language-models, Data annotation for model training, Experimenting with HuggingFace and Transformers.

TEACHING EXPERIENCE

- **Teaching Assistant** *University of Edinburgh, UK*
Human-Computer Interaction, Usable Security and Privacy
 - Assisted professors with classroom management and document coordination to maintain positive learning environment. Supported planning and preparation for hybrid class sessions.
 - Participated in lesson planning and curriculum implementation to promote quicker rollout and delivery.
 - Recorded grades for coursework and tests in an online reporting system.
- **Lab Demonstrator and Marker** *University of Edinburgh, UK*
Machine Learning Practical, Discrete Mathematics and Probability
 - Used critical thinking to break down problems, evaluate solutions and make decisions.
 - Assisted students in understanding material, and solving complex problems.
 - Reviewed class material with students to support discovery of correct answers to problems.

SELECTED PUBLICATION

- **Saka, T.,** Vaniea, K., & Kökciyan, N. (2022). *Context-Based Clustering to Mitigate Phishing Attacks*. In Proceedings of the 15th ACM Workshop on Artificial Intelligence and Security (AISEC 2022) (pp. 115–126). Association for Computing Machinery.
- **Saka, T.,** Vaniea, K., & Kökciyan, N. (2025). *SoK: Grouping Spam and Phishing Email Threats for Smarter Security*. Under Review in IEEE Communications Surveys & Tutorials.

- **Saka, T.**, Vaniea, K., & Kökciyan, N. (2024). *Phishing Codebook: A Structured Framework for the Characterization of Phishing Emails*. arXiv preprint arXiv:2408.08967.
- **Saka, T.**, Vaniea, K., & Kökciyan, N. (2024). *PhishCoder: Efficient Extraction of Contextual Information from Phishing Emails*. In Proceedings of the 2024 Workshop on Security and Artificial Intelligence (SECAI 2024). Association for Computing Machinery.

TECHNICAL SKILLS

- **Languages:** Python, C, SQL, R Studio
- **Mathematics and Statistics:** Analysis, Algebra, Probability, Descriptive and Inferential Statistical Analysis, etc.
- **Machine Learning:** Regression, Clustering, Classification, Semi-Supervised Learning, Data Preparation, Model Evaluation and Validation, PyTorch Framework, Tensorflow Framework
- **Deep Learning:** Artificial Neural Networks, Hyperparameter Tuning, Transfer Learning, GPU Acceleration, Tensorflow, PyTorch
- **Natural Language Processing:** Word Embeddings, Machine Translation, Sequence-to-Sequence Models, Hugging Face Transformers, Parts-of-Speech, Named-Entity Recognition, Probabilistic Models, Language Models, Text Generation, Fine-Tuning Models
- **Human-Computer Interaction:** User-Centered Design, Interaction Design, Qualitative Research Methods, Heuristic Evaluation, Human-Centered Security, Interview Study, Personas, Cognitive Walkthroughs, User Survey