# **Chidera Biringa**

🛿 (508) 863-7923 | 🗳 biringachidera@gmail.com | 🌴 biringachi.github.io/Lines/ | 🖸 biringaChi EDUCATION **University of Massachusetts Dartmouth** MA, US Ph.D. in Engineering and Applied Sciences - Computer Science and Information Systems September 2021 - May 2025 • Thesis: Secure-from-Inception: AI-Driven Software Security via Proactive Vulnerabilities Handling • Advisor: Prof. Gökhan Kul University of Massachusetts Dartmouth (UMD) MA, US College of Engineering — M.S. in Computer and Information Science September 2019 - May 2021 • Advisor: Prof. Ming Shao • Award: Graduate Research Award Recipient **Bells University of Technology** Ota, Nigeria College of Natural and Applied Sciences - B.Tech. in Computer Science and Information Technology November 2013 - May 2017 **PROFESSIONAL EXPERIENCE** Meta Platforms (Reality Labs - Core AI Team) June - September 2024 PhD, Software Engineering Intern, Systems and Infrastructure (Model Optimization) Project Title: Vizard Post-Training Quantization Pipeline, with plans for open-sourcing in the PyTorch Machine Learning library.

- Developed post-training quantization methods for large-scale model quantization and ensured integration with the PyTorch quantization API.
- Developed observers and optimization algorithms to maintain accuracy stability during the conversion from FP32 to quantized versions.
- Tested techniques using large-scale models, where quantized models maintained accuracy performance within a narrow margin of the FP32.

# UMD — College of Engineering (NSA/DHS Security and Privacy Lab)

# **Research Assistant**

- Developed VulStyle: A Multi-Modal Pre-Training for Code Stylometry-Augmented Vulnerability Detection, M2: Detecting Hard-Coded Credentials in Software Repositories via LLMs, PACE: A Program Analysis Framework for Continuous Performance Prediction, SPECDET: A Static and Microarchitectural ML-Based Approaches For Detecting Spectre Vulnerabilities and Attacks, and SEAL: A Secure Design Pattern.
- · Mentored students toward the completion of their National Science Foundation research program projects.

#### **NNPC Limited**

Software Engineering Intern

· Developed the Front-End of NNPC's Engineering and Technical Services Department website

### PEER-REVIEWED DOCTORAL PUBLICATIONS .

- Chidera Biringa and Gokhan Kul. 2025. "VulStyle: A Multi-Modal Pre-Training for Code Stylometry-Augmented Vulnerability Detection." ACM Conference on Data and Application Security and Privacy (CODASPY). [Submitted] [Code]
- Chidera Biringa and Gokhan Kul. 2024. "M2: Detecting Hard-Coded Credentials in Software Repositories via LLMs." ACM Digital Threats: Research and Practice (DTRAP). [Major Revision] [Code]
- Chidera Biringa and Gokhan Kul. 2023. "PACE: Program Analysis Framework for Continuous Performance Prediction." ACM Transactions on Software Engineering and Methodology (TOSEM). Scheduled for presentation at ICSE 2025 Journal First Track [Paper] [Code]
- Chidera Biringa, Gaspard Baye and Gokhan Kul. 2022. "Static and Microarchitectural ML-Based Approaches For Detecting Spectre Vulnerabilities and Attacks." HASP'22 in conjunction with the 55th IEEE/ACM MICRO'22. [Paper] [Code]
- Chidera Biringa and Gokhan Kul. 2022. "A Secure Design Pattern Approach Toward Tackling Lateral-Injection Attacks." The 15th IEEE Interna-. tional Conference on Security of Information and Networks (SIN). [Paper] [Code]
- Gokhan Kul, Chidera Biringa. 2022. "A Practical Guide on Security and Privacy in Cyber-Physical Systems." World Scientific Series in Digital Forensics and Cybersecurity: Volume 3. Forensics in Cyber-Physical Systems. [Book]
- Chidera Biringa, Gokhan Kul. 2021. "Automated User Experience Testing through Multi-Dimensional Performance Impact Analysis." ACM/IEEE 2nd International Conference on AST co-located with the International Conference on Software Engineering (ICSE'21). [Paper] [Code]

#### SELECTED PROJECTS.

- PIF: Predictive Frame Inference using Generative Adversarial Network (GAN) [3 PJ] (April May 2020): Developed a GAN model that interpolates in-between frames of a given video, thus increasing the frame rate. A high-definition 25 FPS video was increased to 50 FPS without loss in resolution, reduced video length, or noticeable distortion. Generated frames were stitched to create a full synthetic video. [Code]
- Database Engine [5 PJ] (February April 2020): Developed an SQL query evaluator with operational support for select, project, join, union, aggregate, and standard optimization techniques such as projection and selection pushdown and cross-product to join conversion. [Code]
- Authorship Attribution [2 PJ] (November 2019): Developed ML classifiers to detect Victorian Era (VE) authors using statistical features of authored novels. Conducted an exhaustive text mining and sentiment analysis. Best-performing classifier achieved 99% accuracy. [Code]
- Chatbot [1 PJ] (December 2019): Developed a customer response chatbot to classify responses to customer inquiries. [Code]

# TECHNICAL SKILL

Mathematics:	Linear Algebra, Probability, Differential Equations, Vector Calculus, and Discrete Mathematics.
Research:	Artificial Intelligence and Machine Learning, Cybersecurity, Cryptography, and Software Performance.
Programming Languages:	C/C++/C#, Java, Python, R, SQL, MATLAB, PHP, Swift, Bash, HTML/CSS & JavaScript.
SERVICES	

May 2020 - Present

May - August 2015