

Chidera Biringa

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EDUCATION

University of Massachusetts Dartmouth

MA, US

College of Engineering, ABET Accredited

Ph.D. in Engineering and Applied Science (Computer Science and Information Systems)

September 2021 - Present

- Research Area: Secure Software Development. Proactive Software Security

University of Massachusetts Dartmouth

MA, US

College of Engineering, ABET Accredited

M.S. (Master of Science) in Computer and Information Science

September 2019 - May 2021

- Award: CIS Graduate Research Award Recipient

Bells University of Technology

Ota, Nigeria

College of Natural and Applied Sciences

B.Tech. (Bachelor of Technology) in Computer Science and Information Technology

November 2013 - May 2017

PROFESSIONAL EXPERIENCE

College of Engineering - UMass Dartmouth

September 2020 - Present

Graduate Research Assistant

- Currently performing research on proactive software security, secure software development, backdoor attacks and intrusion detection systems

NSA/DHS Cybersecurity Center - UMass Dartmouth

May 2020 - Present

Doctoral Student Research Fellow

- Conducted research on software performance and security with Dr. Gokhan Kul
- Mentored three undergraduate students towards the completion of their Research Experience for Undergraduates (REU) program

PUBLICATION

- Chidera Biringa¹, Gokhan Kul. 2021. "Automated User Experience Testing through Multi-Dimensional Performance Impact Analysis." ACM/IEEE 2nd International Conference on Automation of Software Test
- Chidera Biringa¹, Gokhan Kul¹. 2022. "Forensics in Cyber-Physical Systems (CPS)." Springer Cyber Forensics for Cyber-Physical Systems.
- Chidera Biringa¹, Gaspard Baye and Gokhan Kul. 2022. "Static and Microarchitectural ML-Based Approaches For Detecting Spectre Vulnerabilities and Attacks." Hardware and Architectural Support for Security and Privacy (HASP), In Conjunction With MICRO.
- Chidera Biringa¹ and Gokhan Kul. 2022. "Secure Design Pattern Approach Toward Tackling Lateral-Injection Attacks." The 15th IEEE International Conference on Security of Information and Networks (SIN).
- **Under Review** – Chidera Biringa¹ and Gokhan Kul. 2022. "Context-Aware Detection of Secrets in GitHub Repositories." The Security Track at the ACM Symposium on Applied Computing.
- **Under Review** – Chidera Biringa¹ and Gokhan Kul. 2022. "A Framework for Predicting Software Performance." International Conference on Software Testing, Verification and Validation (ICST).

TECHNICAL SKILL

Software Security, NLP, ML, Coding, Algorithms, Mathematics, Systems Design, and Databases

TECHNICAL EXPERIENCE

iFuzz | Intelligent Fuzzing using Deep-Reinforcement Learning

September 2021 - December 2021

- Utilized Markov Decision Process (MDP) to deploy a multi-agent Actor-Critic (AC) Reinforcement learning (RL) technique to identify bugs via mutation and software coverage

Neural Network Model | Predictive Frame Inference (PIF) Model

April - May 2020

- Built an encoder-decoder convolutional neural network that can interpolate 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 length of the video, or noticeable distortions

Database System | SQL Query Evaluator

February - April 2020

- Built an optimized SQL query evaluator for a single-threaded database that can run TPC-H queries. Implemented support for Select, Project, Cross Product, Union, and Aggregate operations

Classification Model | Authorship Attribution

November - December 2019

- Built a random forest classification model that predicts Victorian Era Authors based on their authored novels. Sentiment features were extracted and used as features in the model

SERVICES

- Very Large Data Base (VLDB) Reproducibility Reviewer. 2021
- Startup Weekend UMassD Technical Mentor. 2021 & 2022

REFERENCES

Dr. Gokhan Kul. gkul@umassdedu. 508-910-6484

Assistant Professor and Ph.D Supervisor. University of Massachusetts Dartmouth

Dr. Lance Fiondella. lfiondella@umassd.edu. 508-999-8596

Director, NSA/DHS Cybersecurity Center. University of Massachusetts Dartmouth