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 (Honors)   September 2019 - May 2021

- 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 (Honors)   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 Biringa** [1], Gokhan Kul. 2021. "Automated User Experience Testing through Multi-Dimensional Performance Impact Analysis." ACM/IEEE 2nd International Conference on Automation of Software Test
- Gokhan Kul, **Chidera Biringa** [2]. 2022. "Forensics in Cyber-Physical Systems (CPS)." Springer Cyber Forensics for Cyber-Physical Systems.
- **Chidera Biringa** [1], 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'22), in conjunction with the 55th IEEE/ACM International Symposium on Microarchitecture (MICRO'22).
- **Chidera Biringa** [1] 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).
- **Chidera Biringa** [1] and Gokhan Kul. 2022. "Context-Aware Detection of Secrets in GitHub Repositories." The Security Track at the ACM Symposium on Applied Computing (SAC) — **Currently Under Review**
- **Chidera Biringa** [1] and Gokhan Kul. 2022. "A Novel Approach for Detecting Mediocre Code." The 16th IEEE International Conference on Software Testing, Verification and Validation (ICST) — **Currently Under Review**

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