IEEE Secure Development Conference

Research Interests and Benefit Statement

To Whom It May Concern,

My research interests lie broadly in machine learning and its application to social-technical systems. I work on using machine learning for cyberbullying detection on social networking platforms and understanding the bias in machine learning models used in cyberbullying detection. Receiving the travel grant makes it possible for me to attend the conference. It is an excellent opportunity to present my research, receive feedback on my work, and meet and network with outstanding speakers and peers. Attending SecDev 2022 is a great way to accomplish these, and I hope I am considered and awarded the travel grant.

Regards,
Ebuka Okpala

Ebuka Johnbosco Okpala
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Education

Clemson University, Clemson, SC
Ph.D. in Computer Science — August 2020 – May 2024 (Expected)
- Research interests: Applied Machine Learning, Deep Learning, and Natural Language Processing

M.S. in Computer Science: GPA: 3.75 — August 2018 – May 2020
- Relevant coursework: Design and Analysis of Algorithms, Deep Learning, Hand on Machine Learning, Applied Data Science, Database Management Systems, Software Architecture and Computer Security

Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
B.Sc. Computer Engineering: Second Class (Upper division) — August 2011 – June 2015

Technical Skills

Programming Languages: Python, C/C++, Java, Swift and SQL
Machine Learning Libraries: TensorFlow, Keras, PyTorch, Trax, Scikit-learn, Numpy and Pandas
Web Development: JavaScript, PHP, jQuery, Node.js, MySQL, HTML5 and CSS
Big data: Splunk and Apache Superset

Work Experience

Clemson Online - Clemson University — Clemson, SC
Digital Tech Coordinator (Graduate Assistantship) — August 2019 – Present
- Developed data analytics dashboards using SQL, Splunk, and its Search Processing Language. These dashboards provide insights into how students and faculty use learning tools and have enabled the University to decide what tools to retain, thereby saving costs.
- Worked across teams to develop and maintain the learning technology tools' websites of Clemson University that Clemson Online supports
- Developed a pipeline that automates the calculation of location metrics of thousands of Clemson University students. Improving a manual process that took weeks to under 5 minutes

Apple Inc — Seattle, WA
AI/ML Software Engineering Intern — May 2022 – August 2022
- Built the integration and tooling upon which the Siri Smart Home Experience team drives quality in performance ahead of seeding and production. Developed an analytics dashboard to visualize and access the measured performance and latency metrics

Apple Inc — Seattle, WA
AI/ML Software Engineering Intern — May 2021 – August 2021
- Developed a new end-to-end Siri in the home feature that enable users discover the automations in their home

Eresea Foods Inc — Anambra, Nigeria
Web Software Developer — January 2017 – June 2018
- Designed and developed the Eresea Foods' website from start to production and managed the website after production

Andela — Remote
Web Application Developer Trainee — October 2017 – May 2018
- Developed a progressive news feed headlines web application
- Developed RESTFUL APIs for a web-based student information system using Node.js, AngularJs and MonogoDB

Publications and Posters

- **Enhancing AI-Cybersecurity Education Through Designing AI/ML-based Cyberharassment Detection Labs.** Nishant Vishwamitra, Ebuka Okpala, Keyan Guo, Song Liao, Long Cheng, Hongxin Hu, Yongkai Wu, Xiaohong Yuan, Jeannette Wade, Sajad Khorsandroo. Special Interest Group Computer Science Education (SIGCSE), 2023. (In review)

- **AAEBERT: Debiasing BERT-based Hate Speech Detection Models via Adversarial Learning.** Ebuka Okpala, Long Cheng, Nicodemus Mbwambo, Feng Luo. International Conference on Machine Learning and Applications (ICLMA), 2022. (In review)
- **Characterizing Offensive Tweets in the Era of COVID-19.** Song Liao, Ebuka Okpala, Long Cheng, Nishant Vishwamitra, Mingqi Li, Hongxin Hu, Feng Luo, Matthew Costello. (In revision)
- **COVID-HateBERT: a Pre-trained Language Model for COVID-19 related Hate Speech Detection**. Mingqi Li, Song Liao, Ebuka Okpala, Tong M, Matthew Costello, Long Cheng, Hongxin Hu, Feng Luo. International Conference on Machine Learning and Applications (ICMLA), 2021
- **COVID-19: A Pandemic of Anti-Asian Cyberhate**. Matthew Costello, Long Cheng, Feng Luo, Hongxin Hu, Song Liao, Nishant Vishwamitra, Mingqi Li, Ebuka Okpala. Journal of Hate Studies (JHS), 2021
- **BranchCorr: Detecting Incompatible Branch Behavior by Enforcing Branch Correlation Integrity**. Long Cheng, Ebuka Okpala, Song Liao, Danfeng(Daphne) Yao. Secure Development Conference (SecDev), 2019 poster

Projects

- Designed the hyperparameter tuning and adversarial attack labs in the EAGER SaTC lab project. The hands-on labs engage students in AI-driven, socially-relevant cybersecurity. Designed and developed the EAGER SaTC website

CLEMSON
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Computer Science—Human-Centered Computing—Visual Computing

September 19, 2022

To Whom It May Concern,

I strongly support Mr. Ebuka Okpala's IEEE SecDev 2022 Student Travel Grant application. Ebuka is one of the best Ph.D. students from underrepresented groups at Clemson. It will be his first SecDev poster presentation, and he looks forward to presenting his recent research work at SecDev 2022.

Attending SecDev 2022 conference would be of great benefit for Ebuka's ongoing research. The feedback he receives from his peers will spark new ideas and improve his Ph.D. thesis. It is also an opportunity to network with outstanding speakers and peers. The experience he will acquire by attending the conference will benefit other students in my lab.

Ebuka has strong community engagement. He was selected to attend the National Society of Blacks in Computing (NSBC) conference in Atlanta, 2019. He was also selected to attend the just concluded Computing Research Association Widening Participation (CRA-WP) workshop for Inclusion, Diversity, Equity, Accessibility, and Leadership Skills (IDEALS) in San Diego. Through attending SecDev 2022, Ebuka will have a chance to meet with other underrepresented students in discussions on improving diversity and inclusion in Computer Science.

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Unfortunately, I have limited funds at Clemson University to support his trip to the SecDev 2022 conference. It will be difficult for him to attend the conference and present his work without the student travel grant. I would appreciate it if Mr. Okpala's application is considered and the travel grant awarded to him. Mr. Okpala has outstanding credentials and is a highly deserving candidate for this award.

Thank you for your consideration. Please don't hesitate to contact me with any questions.

Best regards,

Long Cheng, Ph.D.
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Clemson University
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