

SEUN ALO

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SUMMARY

Ph.D. candidate in Electrical Engineering with expertise in computer architecture, hardware acceleration. Proven success in designing energy-efficient computing solutions and advancing machine learning architecture. Seeking to contribute to innovative research and development teams in high-performance computing and technology industries.

EDUCATION

Ph. D	University of Kentucky, Lexington, KY	2022 - Present
M.Sc.	University of Ibadan, NG, Electrical/Electronic Eng.	November 2019
B. Eng.	Federal University of Akure, NG, Electrical/Electronic Eng.	March 2014

RESEARCH EXPERIENCE

Graduate Researcher, Lab: Unconventional Computing Architectures and Technologies (UCAT)
2022 - Present

University of Kentucky, Lexington, US

Working on hardware accelerators for Geometric Deep Learning applications. The work involves designing efficient architectures, optimizing dataflows, and exploring innovative computing techniques to improve performance and energy efficiency for machine learning tasks.

- **Passed Ph.D. Qualifying Exams:** Presented Ph.D. Oral qualifiers on “*Design of an Efficient, Scalable, and Flexible Tensor Processing Architecture with Photonic Integrated Circuits*”. April 2023.
- Currently working on paper publications on GEMM Accelerators for Neural Networks

Research Assistant,

2016 - 2019

University of Ibadan, Oyo State, NG

Conducted research on Content-Based Image Retrieval Systems (CBIRS) for Machine Learning using combined features of Color, Edge, and texture.

PROFESSIONAL EXPERIENCE

Huawei Technologies Nig Co. Ltd, Lagos State, NG September 2017 - August 2022

Service Delivery Project Manager, PMO Department,

Key Responsibilities:

- Managed operational issues by understanding impact, identifying solution options, liaising with technical architects, and key suppliers, managing service partners and customer team.

More Professional Experience available on my [LinkedIn Profile](#)

PUBLICATIONS

- S. Afifi, O. A. Alo, I. Thakkar, and S. Pasricha, "ASTRA: A Stochastic Transformer Neural Network Accelerator with Silicon Photonics," **submitted to the Design Automation Conference, 2025**.
- O. A. Alo, S. S. Vatsavai, and I. Thakkar, "Scaling Analog Photonic Accelerators for Byte-Size, Integer General Matrix Multiply (GEMM) Kernels," in **Proceedings of the IEEE Computer Society Annual Symposium on VLSI (ISVLSI)**, Knoxville, TN, USA, Jul. 2024, pp. 409-414. [Online]. Available: <https://doi.org/10.1109/ISVLSI61997.2024.00080>
- V. S. P. Karempudi, S. S. Vatsavai, I. Thakkar, O. A. Alo, J. T. Hastings, and J. S. Woods, "A Low-Dissipation and Scalable GEMM Accelerator with Silicon Nitride Photonics," **arXiv preprint arXiv:2402.11047**, Feb. 2024. [Online]. Available: <https://arxiv.org/abs/2402.11047>
- S. S. Vatsavai, V. S. P. Karempudi, O. A. Alo, and I. Thakkar, "A Comparative Analysis of Microrings Based Incoherent Photonic GEMM Accelerators," in **Proceedings of the 25th International Symposium on Quality Electronic Design (ISQED)**, Santa Clara, CA, USA, Apr. 2024, pp. 1-8. [Online]. Available: <https://doi.org/10.48550/arXiv.2402.03149>
- O. A. Alo and A. R. Zubair, "Grey Level Co-occurrence Matrix (GLCM) Based Second-Order Statistics for Image Texture Analysis," **International Journal of Computer Applications**, vol. 93, no. 8, pp. 64-73, 2019. [Online]. Available: <https://doi.org/10.48550/arXiv.2403.04038>
- A. R. Zubair and O. A. Alo, "Content-based Image Retrieval System using Second-Order Statistics," **International Journal of Computer Applications**, vol. 176, no. 36, pp. 12-20, Jul. 2020. [Online]. Available: <https://doi.org/10.5120/ijca2020920475>

CONFERENCE/SYMPOSIUM (PRESENTATION)

Presentation:

- A.R. Zubair, **O.A. Alo**, "*Content-based image retrieval system using second-order statistics*", 1st International Conference on Electrical, Electronic, Computer Engineering & Allied Multidisciplinary Fields (1st ICEECE & AMF), University of Ibadan, Nigeria. December 2021. (*Oral Presentation*)
- **O.A. Alo**, "*Silicon Photonics-Based Integer Dot-Product Engine with Configurable Operand Precision*", Electrical and Computer Engineering (ECE) 2023 Symposium, University of Kentucky, Lexington, KY, USA. May 2023. (*Poster Presentation*)

Attendee:

- 2023 IEEE 13th Annual Computing and Communication Workshop and Conference (CCWC), Las Vegas, NV, USA. March 8-11, 2023.
- The 36th International Workshop on Languages and Compilers for Parallel Computing (LCPC 2023), University of Kentucky, Lexington, KY, USA. October 11-13, 2023.

RESEARCH PROFILES & PROJECTS

ResearchGate: <https://www.researchgate.net/profile/Seun-Alo>

Google Scholar: <https://scholar.google.com/citations?user=G3mc-ksAAAAJ&hl=en>

GitHub: <https://github.com/snalo> containing about 3 project repositories (public).

SKILLS

Languages, Tools & Frameworks: C++, Git, Linux, Python, MATLAB, Lumerical (starters), Cadence Design Environment (schematic, Layout, DRC, LVS, and layout extractions)

PROFESSIONAL/ACADEMIC MEMBERSHIP

1. Institute of Electrical and Electronic Engineering (IEEE) Graduate Member, 2021 – Present
2. International society for optics and photonics (SPIE), Member, 2023 - Present
3. Association of Computer Machinery (ACM) Student Member, 2022 – Present
4. Council for the Regulation of Engineering in Nigeria (COREN), 2021 – Present
5. Eta Kappa Nu – HKN, 2023 – Present