STEVEN KOLAWOLE

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RESEARCH INTEREST

Developing scalable algorithmic methods for efficient ML systems – focusing on intelligent cascading, parallelism extraction, and structured pruning that enable deployment at production scale.

EDUCATION

Ph.D., Carnegie Mellon University, USA — 2023 - 2028
Language Technologies Institute, School of Computer Science

BSc., Federal University of Agriculture Abeokuta, Nigeria — 2017 - 2023
Department of Computer Science

RESEARCH EXPERIENCE

Carnegie Mellon University — *Pittsburgh, PA*
Graduate Student Researcher — *Aug 2023 - Present*
Advised by Professor Virginia Smith. Developing algorithmic methods for efficient ML inference.

ML Collective — *remote*
Independent Researcher — *Apr 2021 - Present*
Pre-PhD work mentored by Drs Rosanne Liu & Jason Yosinski; now mentor junior URM researchers. Research focus: resource-constrained NLP, federated learning, and efficient ML.

German Research Centre for Artificial Intelligence (DFKI) — *remote*
Undergraduate Research Assistant with Nils Rethmeier — *Fall 2021*
Investigated resource-efficient models (CLESS) vs. large, self-supervised models on fine-grained downstream tasks.

PUBLICATIONS

[5] **Steven Kolawole***, Lucio Dery*, JF Kagy, Virginia Smith, Graham Neubig, and Ameet Talwalkar. "Everybody Prune Now: Structured Pruning of LLMs with only Forward Passes." [TMLR 2025 (in review)]

[4] **Steven Kolawole**, Keshav Santhanam, Virginia Smith, and Pratiksha Thaker. "ParallelPrompt: Extracting Parallelism from Large Language Model Queries." [NeurIPS 2025]

[3] Duncan Soiffer, **Steven Kolawole**, and Virginia Smith. "Semantic Agreement Enables Efficient Open-Ended LLM Cascades." [EMNLP 2025]

[2] **Steven Kolawole***, Don Dennis*, Ameet Talwalkar, and Virginia Smith. "Agreement-Based Cascading for Efficient Inference." [TMLR 2025]

[1] **Steven Kolawole**, Opeyemi Osakuade, Nayan Saxena, and Babatunde Kazeem Olorisade. "Sign-to-Speech Model for Sign Language Understanding: A Case Study of Nigerian Sign Language." [IJCAI 2022]

PREPRINTS & WORKSHOP PAPERS

[5] Nnaemeka Obiefuna, Samuel Oyeneye, Similoluwa Odunaiya, Iremide Oyelaja, and **Steven Kolawole**. "PrivacyBench: Privacy Isn't Free in Hybrid Privacy-Preserving Vision Systems." [ES-FOMO ICML '25; in review]

[4] Mardiyyah Oduwole, ..., Abraham Owodunni, and **Steven Kolawole**. "From Scarcity to Efficiency: Investigating the Effects of Data Augmentation on African Machine Translation." [arXiv preprint '25]

[3] Busayo Awobade*, Mardiyyah Oduwole*, and **Steven Kolawole***. "What Happens When Small Is Made Smaller? Exploring the Impact of Compression on Small-Data Language Models." [AfricaNLP, ICLR '24]

[2] Colin Leong, ..., **Steven Kolawole** et al. "Adapting to the Low-Resource Double-Bind: Investigating Low-Compute Methods on Low-Resource African Languages." [AfricaNLP, ICLR '23]

[1] Nahid Alam*, **Steven Kolawole***, Simardeep Sethi*, Nishant Bansali, and Karina Nguyen. "Vision Transformers for Mobile Applications: A Short Survey." [arXiv preprint '23]

* equal contribution.

SELECTED WORK EXPERIENCE

Founding Machine Learning Engineer 2022
ASAlytics (now Nazari)

- Built backend systems for opinion mining/analytics for assets on Algorand blockchain via social media scraping;
- Developed scalable data pipeline handling social media feeds and sentiment analysis for cryptocurrency markets.

Data Science Intern 2021
SeqHub Analytics LLC *New Haven, CT*

- Fine-tuned mT5 for machine translation on low-resource Nigerian languages;
- Built microservices for conversational AI agent including edit prediction functionality using Levenshtein Distance;
- Built dockerized dashboard automating analytics workflow, boosting development speed by 45%.

SELECTED HONORS & AWARDS

Algorand Foundation Grant Recipient Awarded $115k grant to develop the ASAlytics platform. (2022)

Sign Language Research Awards {National AI Champion (Nigeria Computer Society, 2022), Ideathon Winner (Deep Learning Indaba 2022 - $10,000 GCP Credits), Best Poster (Data Science Nigeria, 2021), Winner (DeepQuest AI Challenge, 2021)} for work toward communication barriers in sub-Saharan Africa.

Scholar, MTN Foundation Science & Technology Scholarship Academic excellence recognition for high-performing, low-income students in Nigerian public institutions. *Selection rate: 1.8%* (2020, 2021)

Mr. Algorithm (1st Runner-up) Data Science Nigeria's recognition for outstanding contributions to Nigeria's AI ecosystem via technical excellence and knowledge sharing. (2020)

SELECTED TALKS & PRESENTATIONS

IJCAI '22 & NeurIPS ML4D '21 Oral presentations of accepted paper "Sign-to-Speech Model for Sign Language Understanding: A Case Study of Nigerian Sign Language."

Black in AI's ELAI Program & CMU Africa's Research Club Repeated guest speaker on graduate school applications and research career development. (2024-2025)

Cohere For AI Independent Research Panel Panel discussion on thriving as an independent researcher and securing research collaborations. (2023)

SELECTED COMMUNITY IMPACT & SERVICE

Local Organizer, ML Collective Facilitating a grassroots hub, mentoring URM students to develop independent research skills through peer-led studies, collaborative projects, and academic writing support. (2023–present)

Mentor, STEM for Development Coaching URM graduate school aspirants to clarify research interests and optimize applications for Western graduate programs. Currently mentoring 20+ students. (2023–present)

Community Lead, Google Developer Students Club, FUNAAB Organized training impacting 3000+ students, personally teaching 600+ students in ML, data science, and technical skills. (2021–2022)

Campus Lead, AI+ FUNAAB Transformed campus club into a top-3 Nigerian student AI community, enabling record African school undergraduate participation at Deep Learning Indaba (9 in '22; 23 students in '23). (2019–2021)