STEVEN KOLAWOLE

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RESEARCH INTEREST

Designing intelligent algorithmic methods to eliminate unnecessary resource requirements in AI systems.

EDUCATION

Ph.D., Carnegie Mellon University 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*
Developing algorithmic methods for efficient machine learning inference. Advised by Professor Virginia Smith.

ML Collective *remote*
Independent Researcher, primarily mentored by Dr. Rosanne Liu & Dr. Jason Yosinski *Apr 2021 - Present*
Research focus: Sign language understanding, resource-constrained NLP, federated learning, & efficient ML.

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

PUBLICATIONS

[9] Duncan Soiffer, **Steven Kolawole**, and Virginia Smith. "Training-Free Semantic Deferrals for Open-Ended LLM Cascades." [ES-FOMO, ICML '25]

[8] Nnaemeka Obiefuna*, Samuel Oyeneye*, Similoluwa Odunaiya*, Iremide Oyelaja*, **Steven Kolawole***. "Privacy Isn't Free: Benchmarking the Systems Cost of Privacy-Preserving ML." [ES-FOMO, ICML '25]

[7] **Steven Kolawole**, Keshav Santhanam, Virginia Smith, and Pratiksha Thaker. "ParallelPrompt: Extracting Parallelism from Large Language Model Queries." [AFM, NeurIPS '24]

[6] **Steven Kolawole***, Lucio Dery*, Jean-François Kagy, Virginia Smith, Graham Neubig, and Ameet Talwalkar. "Everybody Prune Now: Structured Pruning of LLMs with only Forward Passes." [Under Review '25]

[5] **Steven Kolawole***, Don Dennis*, Ameet Talwalkar, and Virginia Smith. "Agreement-Based Cascading for Efficient Inference." [Under Review '25]

[4] 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]

[3] 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]

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

[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 '22]

* 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%.

Data Scientist (Contract) 2020 - 2021
ScityLana NG *Lagos, Nigeria*

- Mostly under NDA. Developed E2E ML apps including propensity modeling and predictive analytics systems.

SELECTED HONORS & AWARDS

Algorand Foundation Grant Recipient Awarded $115k grant to develop ASAlytics platform for real-time opinion mining and analytics for digital assets. (2022)

Sign Language Research Recognition National AI Champion (Nigeria Computer Society, 2022), 2nd Best Poster Award (Data Science Nigeria AI Bootcamp, 2021), and Winner (DeepQuest AI Challenge, 2021) for sign-to-speech modeling work addressing 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 AI Bootcamp recognition for outstanding contributions to Nigeria's AI ecosystem via technical excellence and knowledge sharing. (2020)

SELECTED TALKS & PRESENTATIONS

IJCAI Conference '22 & NeurIPS '21 ML4D Workshop 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 school 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)

Updated in: **June, 2025**