

# STEVEN KOLAWOLE

Pittsburgh, PA, USA

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## RESEARCH INTEREST

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

## EDUCATION

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**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

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**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 Dr. Rosanne Liu & Dr. Jason Yosinski; now mentor junior URM researchers. Research focus: Resource-constrained NLP, federated learning, & 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

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- [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. “PARALLEL PROMPT: 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

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- [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]
- [4] Mardiyah 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\*, Mardiyah 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

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**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

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**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

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**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

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**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)