Charles Nimo

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Education

Georgia Institute of Technology 08/2023 - Present
- Ph.D. in Computer Science
- Advisors: Dr. Michael L. Best & Dr. Irfan Essa

University of Texas at Austin 08/2021 - 06/2023
- M.S. in Computer Science
- Advisors: Dr. Ying Ding

Virginia Commonwealth University 08/2013 - 06/2017
- B.S. in Electrical & Computer Engineering

Research Experience

Graduate Research Assistant Georgia Institute of Technology
08/2023 - Present
- My research focuses on human-centered natural language processing and large language models for healthcare and multilingual AI systems in low-resource contexts. Specifically, I develop tools to evaluate and improve the safety, robustness, and cultural adaptability of large language models.

Graduate Research Assistant *AI Health Lab* The University of Texas at Austin
06/2022 - 06/2023
- Developed a toolkit for efficient, accurate thoracic disease detection using memory-efficient, compressed networks. Balanced model quality and footprint through network pruning and knowledge distillation.
- Developed a differentially private training regime to safeguard sensitive data while maintaining model accuracy, using weight averaging strategy with differential privacy to improve generalization in private learning.

Undergraduate Research Assistant *UAV Research Lab* Virginia Commonwealth University
08/2015 - 06/2017
- Developed testbenches to analyze the performance of XBEE at different baud rates, packet sizes with encryption enabled
- Established secure communication between ground control station and flight control system using an XBEE 802.15.4 wireless module
- Presented and published associated research at AIAA 2017 Sci-Tech Exhibition in Grapevine, Texas

Publications

Publications marked with an asterisk (*) indicate co-first authorship.

[1] **Charles Nimo**, Shuheng Liu, Irfan Essa, Michael Best. *Africa Health Check: Probing Cultural Bias in Medical LLMs.* Empirical Methods in Natural Language Processing (EMNLP Main) 2025 Conference, 2025.

[2] Tobi Olatunji*, **Charles Nimo***, Abraham Owodunni*, et al. *AfriMed-QA: A Pan-African, Multi-Specialty, Medical Question-Answering Benchmark Dataset.* Proceedings of the 63rd Annual Meeting of the Association for Computational Linguistics (ACL Main 2025), 2025. [Oral Presentation] [Best Social Impact Paper Award].

[3] **Charles Nimo**, Shuheng Liu, Amy Z. Chen, Ramaravind Kommiya Mothilal, Michael L. Best. *Community-Driven Data Practices for Advancing Ethical and Equitable AI in Low-Resource Language Contexts.* Proceedings of the ACM SIGCAS/SIGCHI Conference on Computing and Sustainable Societies (COMPASS 2025), 2025.

[4] Matthew T. Leccadito, Berket Yemaneberhane, **Charles Nimo**, Tim Bakker, and Robert H. Klenke. *Investigating Encrypted IEEE 802.15.4 and DigiMesh Communications for Small Unmanned Systems.* AIAA Information Systems – Infotech @ Aerospace, 2017.

Media & Press Coverage

- **"AfriMed-QA: Benchmarking Large Language Models for Global Health"**, *Google Research Blog*, September 2025. Featured coverage of the AfriMed-QA benchmark project I co-developed.
- **"New Dataset Makes Health Chatbots Like Google's MedGemma More Mindful of African Contexts"**, *Georgia Tech College of Computing News*, July 2025. University feature highlighting AfriMed-QA and its impact on culturally grounded AI for global health.

Industry Experience

Machine Learning Lead — Nkenne AI
08/2022 - Present

- Led development of end-to-end machine learning systems, including neural machine translation, automatic speech recognition, and text-to-speech for low-resource African languages.
- Tackled frontier challenges in multilingual and low-resource AI by designing NLP pipelines for African languages underrepresented in foundation models.
- Collaborated with native speakers and linguists to curate and validate training data for various African languages, ensuring cultural and linguistic relevance.

Engineering Scientist Intern — Johns Hopkins University Applied Physics Lab
05/2024 - Present

- Designed and developed a scalable metadata extraction framework using foundation models for document understanding and structured information retrieval from unstructured USDA regulatory documents, integrating prompt engineering, schema enforcement, and a chatbot interface for downstream querying.

Machine Learning Engineering Intern — NXP Semiconductors
05/2023 - 08/2023

- Built a deep learning based Human Activity Recognition (HAR) system using WiFi Channel State Information (CSI), achieving over 90% test accuracy across diverse indoor environments.
- Developed a scalable CSI data collection pipeline across varied physical scenarios to enhance model generalization and robustness.
- Engineered techniques to mitigate CSI signal noise, multipath interference, and environmental variability, improving real-world performance and system reliability.

Graduate Intern — Intel
05/2021- 08/2021

- Applied mathematical modeling techniques in Python to improve data processing, visualization tools, hardware and software system-level simulations, extracting insights to deliver solutions for Intel customers.

Software Engineer II Dell
06/2017 - 05/2021

- Engineered the migration of enterprise systems to scalable, reactive microservices using Java, enhancing system throughput, memory efficiency, and multi-threaded performance.
- Designed and deployed RESTful APIs for managing distributed infrastructure, enabling multi-system orchestration and secure, synchronized sessions for Department of Defense clients.

Embedded Firmware Engineer Intern Dell
05/2016 - 08/2016

- Worked as a firmware engineer on the next generation of Dell PowerEdge servers
- Created a binary, packaged in firmware, that retrieves critical server data (system info, sensor data, etc.) from iDRAC and writes it to a VGA Display in C language
- Binary allows iT administrators and server personnel convenient access to system information and reports actions performed on server

AWARDS & HONOURS

Best Social Impact Paper Award 2025
Association for Computational Linguistics (ACL 2025), Vienna, Austria

Tapia Conference Scholarship 2024

National GEM Consortium Fellowship Ph.D. Fellowship Award 2023
Georgia Institute of Technology

National GEM Consortium Fellowship M.S. Fellowship Award 2021
The University of Texas at Austin

PRESENTATIONS

Africa Health Check: Probing Cultural Bias in Medical LLMs
ACM EAAMO (Equity and Access in Algorithms, Mechanisms, and Optimization), November 2025

AfriMed-QA: A Pan-African, Multi- Specialty, Medical Question-Answering Benchmark Dataset
Association for Computational Linguistics (ACL-MAIN). Vienna, Austria, July 2025

Benchmarking Large Language Models on African Medical Questions
ISYE 2024 Junior Researcher Workshop, Georgia Institute of Technology. Atlanta, Georgia, April 2024

Investigating Encrypted IEEE 802.15.4 and DigiMesh Communications for Small Unmanned Systems
AIAA Information Systems-AIAA Infotech @ Aerospace. Grapevine, Texas, January 2017

SERVICE

Co-Organizer, *Data Science for Health Workshop*
Deep Learning Indaba 2025, Kigali, Rwanda.

Co-Organizer, *Workshop on Community-Driven Data Practices for Advancing Ethical and Equitable AI in Low-Resource Language Contexts*
ACM COMPASS 2025, Toronto, Canada.

SKILLS

Technologies

- Programming Languages: Python, Java, C++, C
- Frameworks and Others: PyTorch, NumPy, Pandas, HuggingFace (`transformers` and `datasets`), Git, Jupyter, Anaconda, Linux, Google Colab, LaTeX

Languages

- Native: English
- Basic Proficiency: Twi

TEACHING EXPERIENCE

Graduate Teaching Assistant The University of Texas at Austin
08/2021 - 06/2023

- Answering questions and holding weekly recitations for various courses including CS 371L : Mobile Programming for iOS (Fall 2021 & Fall 2022), CS 329E: Elements of Web Programming (Spring 2022), CS 303E: Elements of Computers and Programming (Spring 2023)
- Responsible for grading assignments and exams for 40-50 students each semester
- graded programming assignment solutions and tests