CORNELIUS ONIMISI ADEJORO

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RESEARCH STATEMENT

My research focuses on making AI more understandable, useful, and responsive to people's needs by drawing on their everyday experiences, local knowledge, and values. I design and develop LLM-based tools, including retrieval-augmented generation (RAG) systems and multi-agent AI systems that support learning and work. I test these tools with real users to understand how people learn with, rely on, and collaborate with AI. Through mixed-methods research, I translate these insights into practical design recommendations while ensuring that communities often overlooked in AI development have a voice in shaping its future.

RESEARCH INTERESTS

Human-AI interaction; LLM-based and multi-agent AI systems; trust, reliance, and collaboration with AI; AI and learning; human-centered and culturally grounded AI evaluation; AI and the future of work; societal impacts of AI.

EDUCATION

Ph.D., Computer Science (Human-AI Interaction) Aug 2022 - Present
University of Colorado Boulder · Boulder, USA
Advisor: Dr. Tom Yeh
Committee: Tom Yeh, Leysia Palen, Maria Pacheco, Karla Badillo-Urquiola, Smit Desai

M.S., Computer Science
University of Colorado Boulder · Boulder, USA

M.S., Computer Science
University of Nigeria, Nsukka · Nsukka, Nigeria

B.S., Mathematics and Computer Science
University of Agriculture, Makurdi · Makurdi, Nigeria

Nigeria Certificate in Education (NCE), Computer Science and Mathematics
Federal College of Education, Okene · Okene, Nigeria

PUBLICATIONS

Peer-Reviewed Conference Papers and Extended Abstracts

[C5] Lucas, J. S., Irikefe, P. O., Uchendu, A., Najaer, U., **Adejoro, C. O.**, Sterling, P., & Lee, D. (2026). *Position: Breaking the dual curse of multilingual AI requires socio-technical guardrails, not post-hoc alignment alone.* In *Forty-third International Conference on Machine Learning (ICML), Position Paper Track*. https://openreview.net/forum?id=oetddD8ani

[C4] **Adejoro, C. O.**, Anuyah, O., Sakpere, A., Ani, U. E., Ibrahim, E. T., & Yeh, T. (2026). *Teaching AI by hand in underserved contexts: Framework and insights from Nigerian educators.* In *Extended Abstracts of the 2026 CHI Conference on Human Factors in Computing Systems (CHI EA '26)*, April 13–17, 2026, Barcelona, Spain. ACM, New York, NY, USA, 7 pages. https://doi.org/10.1145/3772363.3798847

[C3] **Adejoro, C. O.**, Anuyah, O., Badillo-Urquiola, K., Raza, A., & Yeh, T. (2026). *Exploring cross-cultural perspectives on AI education: Insights from teachers in Nigeria and the USA.* In *Proceedings of the Symposium on Educational Advances in Artificial Intelligence (EAAI)*, sponsored by AAAI. https://ojs.aaai.org/index.php/AAAI/article/view/41499

[C2] Anuyah, O., Wan, R., **Adejoro, C. O.**, Yeh, T., Metoyer, R., & Badillo-Urquiola, K. (2023). *Cultural considerations in AI systems for the Global South: A systematic review.* In *Proceedings of the 4th ACM African Human–Computer Interaction Conference (AfriCHI '23)*. Acceptance rate: 25%. https://dl.acm.org/doi/abs/10.1145/3628096.3629046

[C1] **Adejoro, C. O.**, Arn, L., Schwartz, L., & Yeh, T. (2023). *Empower children in Nigeria to design the future of artificial intelligence (AI) through writing.* In *Proceedings of the ACM Interaction Design and Children Conference (IDC '23)*, June 19–23, 2023, Northwestern University, Chicago, IL, USA. https://dl.acm.org/doi/abs/10.1145/3585088.3593860

Book Chapter

[B1] Nkwo, M., Ikwunne, T., **Adejoro, C. O.**, & Anuyah, O. (2025). *Exploring usability of AI systems in the Global South: Toward responsible human-centered AI for sustainable cities and communities.* In E. Rosenzweig & A. Davis (Eds.), *Usability for the world: Building better cities and communities* (Human-Computer Interaction Series). Springer, Cham. https://link.springer.com/chapter/10.1007/978-3-031-88326-2_5

Under Review

[U2] **Adejoro, C. O.**, & Yeh, T. *I Am Because We Teach: A systematic review of culturally grounded and human-AI collaborative approaches to AI literacy education in the Global South.* Submitted to the 2027 CHI Conference on Human Factors in Computing Systems (CHI '27).

[U2] Eze, T., Ezema, K., Meguimtsop, A. D. M., & **Adejoro, C. O.** *Understanding privacy in context: A systematic review of risks, protections, and human-centered challenges in multimodal learning analytics.* Submitted to the Learning Analytics and Knowledge Conference (LAK 2027).

[U1] Meguimtsop, A. D. M., & **Adejoro, C. O.** *Multi-dataset analysis for robust speech emotion recognition using deep learning.* Research presentation to speech and machine learning researchers, University of Colorado Boulder.

RESEARCH EXPERIENCE

Graduate Research Assistant, Human-AI Interaction Aug 2022 – Present

University of Colorado Boulder, Department of Computer Science · Advisor: Dr. Tom Yeh

- Design and develop LLM-based tools, including retrieval-augmented generation (RAG) and multi-agent AI systems, that support learning and work.
- Test these tools with real users in classrooms and community settings to understand how people learn with, rely on, and collaborate with AI.
- Own studies end to end: write study plans and protocols, recruit participants, moderate interviews and sessions, analyze qualitative and quantitative data, and report findings.
- Translate research insights into practical design recommendations for the AI systems the team designs and evaluates.
- Collaborate in Agile/Scrum teams with designers, engineers, and researchers, bringing findings on trust, understanding, and use of AI into sprint planning and iterative design.
- Build and coordinate collaborations across institutions and countries, including a five-team summer research effort and studies with educators in Nigeria and the United States.

Founder and Lead, AI by Hand Initiative (Nigeria)

- Engage schools and local collaborators in Nigeria to expand AI literacy and give students opportunities to express their perspectives on AI through writing.
- Consult school leaders and teachers on program priorities and incorporate their feedback into program design; for example, redesigned activities to work with pen and paper after teachers identified limited classroom internet access.
- Facilitated design sprints with educators, moving from classroom needs and idea generation to learning activity prototypes and participant feedback.
- Coordinate school partnerships with local collaborators, defining activity objectives, partner responsibilities, schedules, and resource allocation.
- Oversee research funding and initiative expenditures, coordinating with local collaborators and approving disbursements.
- Develop guidance for students and educators on responsible AI use, including privacy, bias, misinformation, and appropriate classroom use.
- Develop research ethics documentation and participant protection procedures, including informed consent, parental permission, student assent, and confidential handling of participant data.
- Present research findings and recommendations to school leaders and project sponsors to inform program design and implementation.

Research Intern 2016

Nigerian Defence Academy · Kaduna, Nigeria

- Led the development and evaluation of natural language processing models for named entity recognition (NER) on domain-specific corpora, including preprocessing and feature engineering of real-world datasets.

SELECTED RESEARCH PROJECTS

Retrieval-Augmented Generation (RAG) for Culturally Grounded Learning University of Colorado Boulder

- Designed and built a RAG system using GPT-4o mini to deliver culturally grounded content to students.
- Built the data collection pipeline for a knowledge base of 5,000+ K–12 lesson plans.

Multi-Agent AI System: Trust and Reliance University of Colorado Boulder

- Designed and evaluated a multi-agent AI learning system, analyzing how 50 students across 3 classrooms calibrate trust in and rely on it to inform design.
- Designed and analyzed A/B tests of alternative designs; applied journey mapping and information architecture to improve learning workflows and navigation.

Human–AI Co-Reasoning Across Cultures University of Colorado Boulder

- Led a five-person research team studying culturally grounded human–AI collaboration, focusing on trust, interpretation, and co-reasoning.
- Conducted remote semi-structured interviews and participatory design sessions with 12 educators in Nigeria and the United States, and developed a qualitative coding framework to analyze their interpretations of AI, expectations, and barriers to adoption.
- Used Figma to translate findings into wireframes and interactive prototypes, gathering educator feedback to refine navigation, learning activities, and human–AI interaction flows.
- Synthesized findings into six theoretically grounded frameworks for AI literacy that integrate HCI, cognitive science, and sociocultural theory (AAAI/EAAI 2026).

AI Systems in the Global South: Behavioral and Societal Implications CU Boulder · Summer Research

- Led cross-team research across 5 teams on how infrastructure and cultural factors shape AI adoption, including 4-day workshops for 56 teachers.

- Designed and analyzed educator surveys on AI knowledge, confidence, and adoption barriers, using findings to refine workshop content.
- Synthesized evidence from 22 studies, interviews, and stakeholder inputs, and proposed design and policy recommendations for globally resilient AI ecosystems.

Predicting Occupational Automation Risk Using Large-Scale Labor Data University of Colorado Boulder
- Applied supervised regression models to U.S. Bureau of Labor Statistics data to estimate automation risk across seven occupation categories.
- Engineered features from about 20,000 job records using PCA to uncover wage, education, and geographic disparities, and translated findings into visual analytics (R, ggplot2) and recommendations.

Multi-Dataset Speech Emotion Recognition Using Deep Learning University of Colorado Boulder
- Designed and compared three emotion recognition models (CNN, LSTM, and hybrid CNN-RNN) to predict speaker emotion from audio.
- Built a preprocessing and augmentation pipeline (silence trimming, pitch shifting, time stretching, stochastic mixing) over 10,000+ speech samples; reached about 77% accuracy and a near-0.90 F1 on high-arousal emotions.

EVALUATION AND ANALYSIS FRAMEWORKS

- Developed and refined a qualitative coding framework for cross-cultural interviews with educators in Nigeria and the United States, capturing how they interpret AI capabilities, articulate expectations, and identify contextual barriers to adoption.
- Developed a qualitative coding framework for the AfriCHI '23 systematic review, organizing and synthesizing evidence on cultural considerations in AI systems for the Global South.
- Designed grading rubrics for Human–Computer Interaction assignments, translating learning objectives into explicit criteria for evaluating students' reasoning, design decisions, and use of evidence.

TEACHING EXPERIENCE

Teaching Assistant, Senior Capstone Project Fall 2026
University of Colorado Boulder, Department of Computer Science
- Mentor final-year students on capstone projects and coordinate communication with industry project sponsors.

Course Instructor, Human-Computer Interaction Summer 2024
University of Colorado Boulder, Department of Computer Science
- Led instruction in HCI theory, task modeling, sensors and actuators, and AI-augmented interaction design.

Teaching Assistant, CSCI 3002: Foundations of Human–Computer Interaction 2023, 2024, 2025
University of Colorado Boulder, Department of Computer Science
- Guided student teams through Figma-based wireframing, interactive prototyping, and collaborative design critiques, helping them turn user research and usability findings into iterative interface improvements.
- Mentored students in empirical evaluation methods and mixed-methods research design.
- Integrated AI ethics, safety, and sociotechnical analysis into the undergraduate curriculum.

Education Officer (Secondary School Teacher) 2016
Federal public education system, Nigeria
- Delivered secondary-level instruction to a diverse student population.
- Developed curricula and pedagogical strategies suited to resource-constrained institutional environments.

ADVISING AND MENTORING

Mentored 15 undergraduate and graduate students in research and professional development: Adara Noble, Alina Skowronek, Sumeyye Ustunel, Caiden Gilbert, Joseph Westley, Aisli Steele, Erik Alexander, Alyssa Webb, Brody Wingrove, Kristin Off, Wyatt Lyda, Ian Haneke, Adeline Horstman, Nisha Iyengar, Nadav Rosett.

FELLOWSHIPS, HONORS, AND AWARDS

Outstanding Teaching Assistant Award, Department of Computer Science, CU Boulder	Spring 2025
Graduate Summer Research Fellowship, Department of Computer Science, CU Boulder	Spring 2025
Graduate Fellowship in Community-Engaged Research, CU Boulder	Spring 2024
Dean's Future Leaders Fellowship, College of Engineering and Applied Science, CU Boulder	Fall 2022
Early Career Research Award, Department of Computer Science, CU Boulder	Fall 2022

INVITED TALKS AND PRESENTATIONS

2025

- *The Future of AI Agents in Africa: Unlocking Potential Through Cultural Intelligence and Community-Driven Design.* ATLAS Institute, University of Colorado Boulder, USA.

2024

- *Multi-Agent Systems: An Overview.* Safaricom AI Experts Conference, Nairobi, Kenya.
- *Enriching Global AI Ethics Through African Values: A Focus on Children.* HCC Project Lightning Talk, Department of Computer Science, University of Colorado Boulder, USA.
- *Bridging Cultures in AI Education: Perspectives from Nigerian and U.S. Classrooms.* CRA IDEALS Conference, Minneapolis, USA.

2023

- *Empowering Children to Shape Inclusive AI Futures.* CRA IDEALS Conference, Honolulu, Hawaii, USA.
- *Intercultural AI: Exchange, Dialogue, and Conflict.* Many Worlds of AI Conference, Leverhulme Centre for the Future of Intelligence, Cambridge, UK.
- *Imagine AI.* EAAI Conference, Washington, D.C., USA.
- *Cultural Considerations in AI Systems for the Global South: A Systematic Review.* Paper presentation, AfriCHI, East London, South Africa.
- *Empowering Children to Create Inclusive AI Systems Through Participatory Approaches and Addressing Ethical Concerns.* IDC Workshop, Chicago, USA.

PROFESSIONAL SERVICE AND LEADERSHIP

Peer Review

- Symposium on Educational Advances in Artificial Intelligence (EAAI), 2026
- International Journal of Human–Computer Studies, 2025
- International Journal of Child–Computer Interaction, 2024
- ACM Interaction Design and Children Conference (IDC), 2023
- ACM African Human-Computer Interaction Conference (AfriCHI), 2023

Leadership

- Founder and Lead, AI by Hand Initiative
- Student Captain, Africa AI Reading Club, University of Colorado Boulder
- Mentor, Graduate Peer Mentoring Program, University of Colorado Boulder
- Mentor, Emerging Leaders in AI Graduate Prep Program, Black in AI

Professional Memberships

- Association for Computing Machinery (ACM); ACM Special Interest Group on Computer–Human Interaction (SIGCHI); Association for the Advancement of Artificial Intelligence (AAAI)

TECHNICAL AND METHODOLOGICAL SKILLS

LLMs & AI Systems: Large language models (GPT-4o mini); retrieval-augmented generation; multi-agent systems; prompt engineering; LLM fine-tuning; AI-assisted development with Claude Code and Codex

Machine Learning: PyTorch, TensorFlow, scikit-learn, Hugging Face, Weights & Biases; deep learning (CNN, LSTM, hybrid CNN-RNN); NLP (named entity recognition); supervised regression; PCA; cloud-based training on Google Colab

Programming & Data: Python, C, R, SQL (MySQL, Oracle), Java, HTML/CSS, PHP, MATLAB, LaTeX; data collection and preprocessing pipelines

Research Methods: Mixed-methods research; Randomized Controlled Trials (RCT); controlled experiments; A/B testing; usability testing; interviews; surveys; observation; participatory design; design sprints; journey mapping; information architecture; qualitative coding framework development; thematic analysis; affinity diagramming; systematic literature reviews

Analysis & Visualization: ANOVA; paired t-tests; regression; mixed-effects models (R lme4); R (tidyverse, ggplot2); pandas; Tableau; Microsoft Power BI

Design & Prototyping: Figma wireframes and interactive prototypes; Agile/Scrum

PRESS AND MEDIA

- CU Boulder interview on culturally sensitive AI and technology for vulnerable children. Link
- Vanguard Newspaper report on research engaging children in inclusive AI-based solutions. Link
- Tribune Newspaper report on advocacy for the use of 'AI by Hand' to revolutionize learning. Link
- Leadership Newspaper report on advocacy for an innovative approach to learning AI. Link

References available upon request.