

TASSALLAH AMINA ABDULLAHI

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RESEARCH INTERESTS

Trustworthy & Responsible AI, Safety and Alignment of LLMs, Low-Resource & Multilingual NLP, Evaluation & Benchmarking, Retrieval-Augmented Systems, Knowledge Graphs, Generative AI for Healthcare & Scientific Discovery

EDUCATION

Brown University

Ph.D. Candidate in Computer Science

Sc.M. in Computer Science (GPA: 4.00/4.00)

Advised by: Carsten Eickhoff (University of Tübingen) and Ritambhara Singh

Providence, RI

Sept 2021 - Present (5th Year)

May 2023

University of Cape Town

M.Sc. in Computer Science (Awarded Distinction)

B.Sc. (Honors) in Information Technology

Cape Town, South Africa

May 2021

May 2019

Bayero University Kano

B.Sc. (Honors) in Computer Science (GPA: 4.34/5.00)

Kano, Nigeria

May 2014

SELECTED PUBLICATIONS & PROJECTS

Trustworthy AI, Multilingual NLP, Low-Resource NLP and Evaluation

- **Position Paper: Benchmarking is Broken—Don't Let AI Be Its Own Judge.** (NeurIPS, 2025). [Responsible AI evaluation]
- **AfriMed-QA: A Pan-African, Multi-Specialty Medical QA Dataset.** ACL, 2025. Best Social Impact Paper Award. [Multilingual dataset creation for low-resource healthcare QA]
- **Afrispeech-Dialog: A Benchmark for Spontaneous Healthcare Conversations in African English.** NAACL, 2025. [Speech dataset for clinical settings in African English]
- **AfriVox: Probing Multilingual and Accent Robustness of Multimodal Models.** (ACL ARR, under review, 2025).

Retrieval-Augmented Systems and Knowledge Graphs for Trustworthy Decision Making

- **LLM-Powered Graph Reasoning for Knowledge Discovery** WIML, NeurIPS, 2025.
- **K-Paths: Reasoning over Graph Paths for Drug Repurposing and Drug Interaction Prediction.** KDD, 2025.
- **Retrieval-Augmented Zero-Shot Text Classification.** ACM SIGIR ICTIR, 2024.
- **Retrieval-Based Diagnostic Decision Support: A Mixed-Methods Study.** JMIR Medical Informatics, 2024.

Evaluation of Generative AI for Clinical Reasoning, Safety and Robustness

- **Diagnostic Accuracy of ChatGPT-4.0 for TIA and Stroke.** International Stroke Conference, 2025.
- **Learning to Make Rare and Complex Diagnoses with Generative AI Assistance.** JMIR Medical Education, 2024.
- **A Multi-Country Study Comparing Typed vs. ASR-Based Medical Documentation.** (BMJ Digital Health and AI, 2025)

Advancing Healthcare with Time Series Forecasting

- **Identifying and Timing Patient Outcomes in Clinician Notes Using Large Language Models.** *Under review* AI in Medicine, 2025.
- **Predicting Disease Outbreaks with Climate Change.** PLOS ONE, 2021.

WORK EXPERIENCE

Optum AI, UnitedHealth Group
Graduate Research Intern – AI/ML in Healthcare

Remote, USA
Jun 2025 – Sept 2025

- Conducted research on retrieval-augmented generation and agentic AI for real-time healthcare applications.
- Designed abbreviation-aware pipelines for knowledge graph curation in clinical domains.
- Fine-tuned embedding models with contrastive learning to improve retrieval quality for downstream tasks.
- Applied reflective prompt engineering techniques to reduce hallucinations and improve model precision.
- Developed adversarial evaluation strategies and prompt circumvention tests to assess robustness and safety of healthcare LLMs.
- Collaborated with cross-functional teams to design and evaluate model performance frameworks.

Technical Internships and Research Assistantships

Azure Administrator Intern, EUC Africa
Managed virtual networks, resource monitoring, and automation on Microsoft Azure.

Oct 2020 - Apr 2021

Research Assistant, University of Cape Town
Modeled the impact of climate change on healthcare outcomes, contributing to peer-reviewed publications.

Jun - Aug 2020

INVITED TALKS & WORKSHOPS

- Brown University Love Data Week 2025:** LLMs for Diagnostic Decision Support
- Brown COBRE 2025:** Innovations in AI: Applications to Research and Healthcare
- Emory Health AI Bias Datathon 2024:** Breast cancer disparities and evidence-based imaging
- Clinical Machine Learning Workshop 2024:** Can LLMs Perform Complex Diagnostics?

ACADEMIC LEADERSHIP & AWARDS

Leadership & Mentorship

- Led collaborations across African institutions to build multilingual healthcare datasets, engaging linguists, clinicians, and community stakeholders.
- Mentored undergraduate research assistants and Erasmus exchange students (2023–2024).
- Data Science Mentor at HASTE Health AI Datathon, Brown University (2024).

Awards

- ACM SIGHPC Computational & Data Science Fellowship (2022–2025)
- Brown University Diversity Fellowship (2021–2024)
- National Research Foundation Scholarship, South Africa (2020)
- Mandela Institute for Development Studies Scholarship (2019–2020)

SKILLS

Programming	Python, Java, R, MySQL
Frameworks	PyTorch, TensorFlow, Keras, Scikit-learn, Pandas
Cloud Platforms	Microsoft Azure, Google Cloud Platform (GCP)
Specialties	Trustworthy AI, Adversarial Testing, LLM Finetuning, Prompt Optimization, RAG, Knowledge Graphs, MLOps
Languages	English, Hausa, Yoruba