

TASSALLAH AMINA ABDULLAHI

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RESEARCH INTERESTS

Generative AI, LLMs in Healthcare, LLM Reasoning and Safety, Information Retrieval, Knowledge Graphs, Data-Driven Drug Discovery, Human-in-the-loop Evaluation

SELECTED LEADERSHIP HIGHLIGHTS

Led evaluations of LLM-based diagnostic tools across 200+ clinician-reviewed scenarios to assess safety and clinical utility.
Developed annotation protocols for Afrimed-QA and spontaneous healthcare dialogues, ensuring cultural and clinical accuracy.
Co-developed quality benchmarks for patient triage systems and clinical trial matching platforms.
Contributed to early warning systems for disease outbreaks and temporal outcome prediction pipelines using real-world clinical notes.

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

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

Under Review

- **Identifying and Timing Patient Outcomes in Clinician Notes Using LLMs.** (AI in Medicine, 2025).
- **Evaluation of GPT-4o for Diagnosis of Myocardial Infarction and Cardiac Ischemia.** (AMIA 2025).
- **Evaluation of Prompt Engineering for ChatGPT and DeepSeek AI as Emergency Symptom Checkers.** (AMIA 2025).
- **A Multi-country Study Comparing Typed to ASR-based Medical Documentation Speeds.** (BMJ Digital Health and AI, 2025).
- **Fine-Tuning Multimodal Large Language Models to Translate and Transcribe: Will 1,800 Hours Unlock Low-Resource ASR & MT?** (ACL ARR 2025)

Retrieval-Augmented Systems and Knowledge Integration

- **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.

Generative AI and LLMs in Medicine

- **Diagnostic Accuracy of ChatGPT4.0 for TIA or Stroke Using Patient Symptoms and Demographic Data.** International Stroke Conference, 2025.

- **Learning to Make Rare and Complex Diagnoses with Generative AI Assistance.** JMIR Medical Education, 2024.

Healthcare Data & Benchmarks

- **AfriMed-QA: A Pan-African, Multi-Specialty, Medical QA Dataset.** ACL 2025.
- **Afrispeech-Dialog: A Benchmark Dataset for Spontaneous English Conversations in Healthcare.** NAACL 2025.

AI and Climate Health

- **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

- Conducting AI/ML research for behavioral health applications using real-world healthcare data.
- Collaborating with cross-functional teams to explore model evaluation frameworks.
- Documenting findings for internal dissemination and publication.

Technical Internships and Research Assistantships

- *Azure Administrator Intern, EUC Africa*
Managed virtual networks, resource monitoring, and automation on Microsoft Azure.
 - *Research Assistant, University of Cape Town*
I worked on a project to model the impact of climate change on healthcare, which led to publications.
- Oct 2020 - Apr 2021
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

Mentorship

- Mentored undergraduate research assistants and Erasmus exchange student (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	LLM Finetuning, Prompt Optimization, RAG, Knowledge Graphs, Clinical Evaluation Design, Benchmark
Languages	English, Hausa, Yoruba