Chisom Anyabolu

Postdoctoral Researcher | Artificial Intelligence | Data Visualization | Computational Research

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Research Profile

Postdoctoral researcher working at the intersection of artificial intelligence, data visualization, and computational methods for biomedical and public-health research. My work spans AI evaluation and reliability, uncertainty and human-AI interaction, bioinformatics, computational genomics, and scientific software. I design and evaluate computational methods, interactive visualizations, and research tools for understanding complex data and AI-supported information, with additional experience in interdisciplinary research, benchmarking, supervision, teaching, and scientific communication.

Professional Experience

Postdoctoral Researcher **Jan 2024–Present**

Visualization Group, Center for Artificial Intelligence in Public Health Research, Robert Koch Institute (RKI) *Berlin, Germany*

Parental leave: 2025.

- Conduct research at the intersection of AI evaluation, uncertainty, data visualization, and human–AI interaction in public-health settings.
- Develop methods, interactive visualizations, and user-facing computational tools for interpreting complex data and AI-supported information.
- Investigate how uncertainty and model limitations can be communicated and incorporated into meaningful human oversight of AI-assisted decision-making.
- Contribute to interdisciplinary research, scientific publications, and proposal development across AI, visualization, uncertainty, and public health.

Research Associate **Oct 2020–Dec 2023**

Heider Lab / MOSLA, Philipps-Universität Marburg *Marburg, Germany*

- Developed bioinformatics and machine-learning pipelines for omics and multi-omics research.
- Designed and extended visualization and analytical methods for complex, high-dimensional scientific data.
- Contributed to comparative evaluation and benchmarking of computational methods, including work on molecular data-storage systems within MOSLA.
- Supervised and mentored Bachelor's and Master's students and student researchers, and supported teaching and workshops in bioinformatics, visualization, and computer science.

Data Scientist **May 2018–Oct 2019**

International Institute of Tropical Agriculture (IITA) *Ibadan, Nigeria*

- Developed computational pipelines for genome-wide RNA-sequencing and gene-expression datasets.
- Performed large-scale analyses using high-performance computing and integrated outputs from multiple computational workflows.
- Managed research datasets and carried out data-quality checks for completeness, correctness, and integrity.
- Communicated results through scientific reports, visualizations, tables, and presentations and contributed to research/project development.

Research Fellow **May 2017–Apr 2018**

International Institute of Tropical Agriculture (IITA) *Ibadan, Nigeria*

- Developed computational methods and R/Python pipelines for cassava gene annotation and genomic data analysis.
- Contributed to scientific presentations, manuscripts, and grant applications.

Education

PhD (Dr. rer. nat.), Computer Science **2024**

Philipps-Universität Marburg, Germany. Magna cum laude; defended May 2024.

MSc, Computer Science (Bioinformatics) **2018**

University of Ibadan, Nigeria

BSc, Computer Science **2013**

Anambra State University, Nigeria

Selected Research Software and Projects

ActionCue — Process-transparency visualization for uncertainty-aware human oversight in AI-supported decision-making.

UNACORM — Unified environment for standardized and reproducible evaluation of DNA data-storage codecs.

DNAsmart — Interactive multi-attribute ranking and visualization tool for comparing DNA data-storage systems.

CAPT — Context-aware visualization for exploring phylogenetic and taxonomic relationships.

GeAnnotate — Computational framework for cassava gene annotation.

Publications

Earlier publications appear under Chisom Ezekannagha.

2026 Awotoro, E., Anžel, A., **Anyabolu, C.**, Willrich, N., Hattab, G. "Network-based characterization of latent co-testing patterns in antimicrobial susceptibility testing."
iScience, 29(10), 2026. Published online September 22, 2026. doi:10.1016/j.isci.2026.117421.

Anyabolu, C., Dubey, A., Hattab, G. "Visualizing Uncertainty-to-Action Composition for Human Oversight."
IEEE VIS 2026 Uncertainty Visualization Workshop. Accepted.

Awotoro, E. O., **Anyabolu, C.**, Schwarz, F., Tauscher, J., Heider, D., Ladewig, K., Le Bon, C., Moncoq, K., Miroux, B., Hattab, G. "MetaMP Ecosystem for Unified, Auditable, and Benchmark-Ready Data for Reliable Membrane Protein Annotation."
Computational and Structural Biotechnology Journal. doi:10.34133/csbj.0165.

Anžel, A., **Anyabolu, C.**, Wimbes, L., Staus, L., Heldian, I. T., Sonnabend, D., Elhadri, K., Becker, S., Klein, F., Schoen, R., Schwarz, M., Welzel, M., Freisleben, B., Heider, D., Hattab, G. "The Unified Evaluation App for DNA Data Storage Codecs."
Submitted to Advanced Science; under review. arXiv:2608.09673.

2024 Hattab, G., Anžel, A., Dubey, A., **Ezekannagha, C.**, Yang, Z., Ïlgen, B. "Persona Adaptable Strategies Make Large Language Models Tractable."
Natural Language Processing and Information Retrieval (NLPIR). doi:10.1145/3711542.3711581.

Wehrli, S., **Ezekannagha, C.**, Hattab, G., Boender, T., Arnrich, B., Irrgang, C. "Guiding Sentiment Analysis with Hierarchical Text Clustering: Analyzing the German X/Twitter Discourse on Face Masks in the 2020 COVID-19 Pandemic."
WASSA, Association for Computational Linguistics. Paper.

2023 Ezekannagha, C., Welzel, M., Heider, D., Hattab, G. "DNAsmart: Multiple Attribute Ranking Tool for DNA Data Storage Systems."
Computational and Structural Biotechnology Journal, 21, 1448–1460. doi:10.1016/j.csbj.2023.02.016.

2022 Ezekannagha, C., Becker, A., Heider, D., Hattab, G. "Design Considerations for Advancing Data Storage with Synthetic DNA for Long-Term Archiving."
Materials Today Bio, 15, 100306. doi:10.1016/j.mtbio.2022.100306.

Kaya, G., **Ezekannagha, C.**, Heider, D., Hattab, G. "Context-Aware Phylogenetic Trees for Phylogeny-Based Taxonomy Visualization."
Frontiers in Genetics, 13, 891240. doi:10.3389/fgene.2022.891240.

2021 Olagunju, T. A., **Ezekannagha, C.**, Gisel, A. "3'-Tag RNA-Sequencing."
EMBnet.journal, 26(Suppl A), e968. doi:10.14806/ej.26.A.968.

Research Leadership and Supervision

PhD

Ebenezer Awotoro — PhD, Computer Science (co-supervision; expected 2027).

Master's

Florian Schwarz — MSc, Computer Science (2023).
Minh Nguyen — MSc, Business Informatics (2023).

Bachelor's

Chu Xiao — BSc, Computer Science (2023).

Teaching

- **Introduction to Bioinformatics**, Philipps-Universität Marburg, 2022 — Tutor.
- **DNA Storage Encodings - Group Project**, Philipps-Universität Marburg, 2021–2022 — Tutor and co-organizer.
- **Data Visualization**, Philipps-Universität Marburg, 2021 — Co-tutor.
- **Biological Data Visualization**, Philipps-Universität Marburg, 2020–2022 — Co-tutor.

Professional Service and Public Engagement

- Program Committee, IEEE VIS 2026 Uncertainty Visualization Workshop.
- Peer reviewer for scientific journals.
- Panelist, *The Future of Health: Women Leading Innovation in Health & AI*, organized by Doctolib and Women Techmakers Berlin.

Selected Presentations

- IEEE VIS 2026 Uncertainty Visualization Workshop, Boston, USA — Accepted presenter (2026).
- International Conference on Data Storage in Molecular Media (DSMM), Bielefeld, Germany — Presenter (2022).
- Nigerian Bioinformatics Conference, Lagos, Nigeria — Poster presentation (2019).

Selected Training and Professional Development

- Oxford Machine Learning Summer School, University of Oxford, UK — 2022.
- Bio+Med+Vis Spring School — 2021.
- Next Generation Sequencing Bioinformatics Workshop, University of the Witwatersrand, South Africa — 2019.
- H3ABioNet Introduction to Bioinformatics Course, University of Ibadan, Nigeria — 2016.

Awards and Funding

- Travel Grant, Next Generation Sequencing Bioinformatics, University of the Witwatersrand — 2019.
- Training Grant, H3ABioNet Introduction to Bioinformatics Course — 2016.

Technical Skills and Languages

Programming: Python, R, JavaScript, React
Machine Learning: PyTorch, TensorFlow, Scikit-learn
Visualization: D3, Vega-Lite, Altair, Plotly, Matplotlib
Data and Computing: SQL, NoSQL, scientific computing, high-performance / cluster computing
Research and Engineering: Git, Docker, LaTeX, web development, bioinformatics
Languages: Igbo — Native | English — Fluent | German — Intermediate (B1)