

Education

- 2023–2024 **MSc in Artificial Intelligence and Adaptive Systems**, *University of Sussex*, Brighton, UK
Graduated with distinction
Thesis: *Complexity Measures in Diverse Dynamical Regimes and Application to States of Consciousness*
Supervisor: Dr. Adam B. Barrett
- 2009–2014 **B.Eng in Mechanical Engineering**, *Ahmadu Bello University*, Zaria, Nigeria
Graduated with a 2:1
Thesis: *Design, Fabrication and Testing of a Solar Powered Egg Incubator*

Research Experience

- 08/2024–
Present **Research Collaborator**, *MESEC, Mediterranean Society for Consciousness Science*, Corsica, France, with Prof. Guillaume Dumas
Project: *Exploring Consciousness through Social Interactions: A Neuro-AI Approach*
– Investigating how social interactions may shape consciousness.
– Computational modeling and hyperscanning to explore inter-brain neural correlates and the potential impact of interpersonal dynamics on intrapersonal consciousness.
- 04/2024–
09/2024 **Research Assistant**, *Sussex Centre for Consciousness Science, University of Sussex*, Brighton, UK, Department of Informatics, with Dr. Adam B. Barrett
Project: *Complexity Measures and States of Consciousness*
– Compared statistical complexity and Lempel–Ziv complexity across wakefulness, sleep stages, and psychedelic-induced states using intracranial depth electrode (iEEG) recordings.
– Identified how complexity measures reflect neural dynamics and information richness/integration (entropic brain; links to IIT).
- 10/2023–
01/2024 **Lab Assistant**, *Future Technology Lab., University of Sussex*, Brighton, UK, with Dr. Chris Johnson
Project: *Towards Adaptive Machines: Synaptic Homeostasis in Robotics*
– Applied CTRNNs for robotic adaptability in line-following tasks.
– CoppeliaSim navigation with synaptic scaling to stabilise speed under changing environments.
- 2012–2014 **Teaching Assistant**, *Ahmadu Bello University*, Zaria, Nigeria
Led tutorials in Mathematics, CAD (SolidWorks/AutoCAD), and Programming (MATLAB, JavaScript).

Industry Experience

- 09/2024–
Present **AI Math Trainer (Remote)**, *Outlier AI*, York, UK
Train/evaluate generative AI on advanced mathematics; design problems; verify solution correctness/clarity.
- 02/2020–
09/2023 **Data Specialist**, *UBA Group*, Lagos, Nigeria
Led large-scale analytics; built ML models and statistical pipelines to improve decision-making and customer value.
- 06/2019–
10/2019 **Data Analyst Intern**, *Dataville Research LLC*, Lagos, Nigeria
Analysed regional survey data; built tracking system for key metrics and reports for donors/NGOs.
- 2018–2022 **Creative Director & CTO**, *HabincciHub*, Lagos, Nigeria, Hybrid
Co-founded a startup improving distribution of agricultural products; led tech/design and product execution.

Publications and Preprints

- 2024 **Odan, S., & Barrett, A.** (Supervisor) (2024). *Complexity Measures in Diverse Dynamical Regimes and Their Application to States of Consciousness. Mathematical and Computational Biology*. DOI: [10.20944/preprints202410.0649.v1](https://doi.org/10.20944/preprints202410.0649.v1).

2024 **Odan, S.** (2024). *Metaheuristic Method for Solving Systems of Equations. Neural and Evolutionary Computing (cs.NE)*, arXiv:2409.16958. DOI: [10.48550/arXiv.2409.16958](https://doi.org/10.48550/arXiv.2409.16958).

Conferences and Talks

- 09/2025 **Talk**, *Statistical Complexity Distinguishes Different States of Consciousness*, Harnack Haus, Berlin, Germany, Max Planck School of Cognition — Welcome Days
Presentation on SC vs. LZc across neural and simulated data, with emphasis on causal irreversibility.
- 11/2024 **Poster**, *Statistical Physics of Cognition Workshop*, Institute of Physics, London, UK
Presented "Complexity Measures in Diverse Dynamical Regimes and Application to States of Consciousness."
- 10/2024 **Poster**, *SCCS New Lab Launch*, University of Sussex, Brighton, UK
Compared Statistical Complexity vs. Lempel–Ziv in simulated and experimental data.
- 09/2024 **Talk**, *MESEC Workshop 2024*, Corsica, France, Chair: Prof. Thomas Metzinger
Co-presented with Prof. Guillaume Dumas: "Exploring Consciousness through Social Interactions: A Neuro-AI Approach."
- 06/2024 **Poster**, *Sussex AI Day*, University of Sussex, Brighton, UK
"Towards Adaptive Machines: Synaptic Homeostasis in Robotics."

Awards and Scholarships

- 2023 Sussex Nigeria Scholarship, University of Sussex
- 2012 Innovative Young Engineers Award, Nigerian Society of Engineers, ABU Zaria
- 2003–2006 Full Scholarship, Christ Comprehensive Schools, Kaduna

Skills

- Programming Languages & Frameworks Python (advanced), Julia (intermediate), **MATLAB** (intermediate), JavaScript (intermediate). First experiences in Java and Lua.
Frameworks: JAX, TensorFlow, PyTorch, Keras, scikit-learn, DEAP.
- Data Analysis Time-series (EEG/MEG), Data Compression (Lempel–Ziv **Compression** Algorithm), Feature Extraction, Source Localisation, Connectivity (Granger Causality), Signal Processing (Entropy), Dimensionality Reduction (PCA).
- Machine Learning NLP, Ensemble Learning (Random Forest, Gradient Boosting), Deep Learning, SVMs, Model Optimisation, experience with Distributed GPU Training.
- Robotics & Autonomous Systems Dynamical Systems, Adaptive Control, Evolutionary Algorithms, Sensorimotor Integration, Reinforcement Learning, Autonomous Navigation.
- Software & Tools Git, Webots, CoppeliaSim, Pygame, AutoCAD, SolidWorks, Adobe Creative Suite, MS Office, SQL, Excel, R (basic), MS Power BI.
- Research Techniques Literature Search, Experimental Design, Data Collection, Statistical Analysis, Hypothesis Testing, Scientific Writing, Public Presentation, Manuscript Preparation, Cross-Disciplinary Teamwork.

Extracurricular Activities

- 2024–Present Member, Mediterranean Society for Consciousness Science (MESEC), Corsica, France
- 2024–Present Founding Member, Consciousness Society Sussex, University of Sussex, Brighton, UK

Personal

- Languages English (Fluent), Iggede (Native), Hausa (Basic)
- Google Scholar <https://scholar.google.com/citations?user=3NSWLsIAAAAJ&hl=en>