# Jane Odum

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**Research Interests**

Artificial intelligence for low-resource and resource-constrained environments. Generative diffusion models for probabilistic time series forecasting; multi-channel and multimodal learning; on-device and offline inference with medical foundation models; low-resource African-language natural language processing; epidemiological surveillance systems.

**Education**

**University of Georgia**, Athens, Georgia, USA — Spring 2021 – Dec 2026 (expected)

**Ph.D., Computer Science**

- NES Lab (Neuro-Symbolic Computing Lab). Advisor: Dr. John A. Miller.
- Committee: Dr. Jin Sun, Dr. Ninghao Liu. Co-advisor on selected work: Dr. I. Budak Arpinar.
- Dissertation: diffusion-based generative models for probabilistic epidemiological time series forecasting.
- Graduate coursework: Machine Learning, Algorithms, Software engineering, Data mining, Trustworthy Machine Learning, Databases, Advanced Robotics, Human-Computer interaction and Advanced Representation Learning.

**Columbia University**, Machine Learning Summer School — June 2026

**42 Silicon Valley**, Fremont, California, USA — Dec 2019 – Dec 2020

*Software Engineering programme bootcamp.*

**University of Ilorin**, Ilorin, Nigeria — Oct 2016 – Oct 2019

*B.Sc., Computer Science.*

**Refereed Conference Papers**

[C1] **Odum, J.** and Miller, J. A. *MAAN: Multi-channel Adaptive Attention Network for Probabilistic Time Series Forecasting*. SIAM International Conference on Data Mining (SDM26), 2026. **Accepted.**

- Introduces the Causal Cross-Modal Adapter, operating in two modes: a latent funnel for high-dimensional covariates and a noise-adaptive causal graph for low-dimensional covariates. Joint-window training with selective noising and a masked diffusion loss for stable multi-step forecasting.

[C2] **Odum, J.** and Miller, J. A. *Adaptive Quantile Guidance in Diffusion Models: Multi-Dataset Learning for Pandemic Time Series*. IEEE International Conference on Machine Learning and Applications (ICMLA), 2025. **Accepted.**

- Introduces AQDiff: multi-dataset pre-training of a unified time series diffusion model across CDC influenza-like illness, COVID-19 and RSV data, with adaptive quantile guidance driven by an exponentially weighted residual buffer. Reduces mean absolute error by up to 73.3% against CSDI and PatchTST baselines at under 10% additional computational overhead.

[C3] Osamor, J., **Odum, J.**, Iwendi, C., Olajide, F., Peter-Osamor, I., Onyenagubom, V. and Ayodele, I. *Ethical Implications of WannaCry: A Cybersecurity Dilemma*. Proceedings of

the 19th International Conference on Cyber Warfare and Security, Academic Conferences and Publishing International, 20 April 2025.

- Analyses the ethical responsibilities of government agencies, technology companies and security professionals in handling zero-day vulnerabilities, and proposes ethical frameworks balancing national security against global cybersecurity.

## Patents

[P1] *Machine Learning-Based Detection and Mitigation of Leaked API Configuration Parameters*. United States patent application. Named co-inventor (one of five). Assignee: Stripe, Inc. Inventor declaration executed 22 May 2026.

## Awards and Honours

**First Place, Google Health AI MedGemma Impact Challenge** 2026

- USD $30,000 grand prize. Selected first from over 850 teams and 6500 entrants worldwide, for EpiCast.

**Ambassador Award of Excellence, University of Ilorin Alumni** 2026

- Annual award recognising distinguished alumni of a university that graduates approximately 12,000 students each year.

**Outstanding Graduate Teaching Assistant Award**, School of Computing, UGA 2026

- Departmental award recognising sustained instructional contribution across ten courses in computer science and machine learning, including Evolutionary Computing, Computer Architecture, Human-Computer Interaction and Theory of Computation.

**First Runner-Up, Franklin CREATE! Pitch Competition**, UGA [year]

- Placed first runner-up among 20 competing teams.

**Franklin CREATE! LAUNCH Grant**, University of Georgia [year]

- USD $7,500 competitively awarded build grant; funded development of Startup Idea.

**AWS "We Power Tech" Grant (Project Alloy), AWS re:Invent** 2019

- Selected as one of approximately 50 recipients from approximately 3,000 applicants (under 2%).

**University of Ilorin student honours** 2019

- Certificate of Honour, "50 Most Reputable CIS Students" (CISSA); Software Developer of the Year; Leadership Award of Excellence; Programmer of the Year; Woman Tech Maker of the Year.

## Research Systems and Software

**EpiCast**: multimodal AI epidemiological surveillance for ECOWAS 2025 – present

- Mobile-first surveillance platform for West African community health workers. MedGemma 4B fine-tuned and quantized to GGUF for fully offline on-device inference at sub-second latency with no cloud dependency.
- Integrates MedSigLIP for clinical image triage, HeAR for cough-based respiratory classification, and a multilingual NLP pipeline trained on 9,700+ corpus-grounded examples across French, Hausa and Yoruba. MedGemma 27B generates structured WHO IDSR situation reports.

**Tsaro**: AI-powered community early warning system, northern Nigeria [year]

- End-to-end system (Flask backend, React Native frontend) combining fine-tuned Gemma models with SMS-tier delivery for low-connectivity environments.

**Pincel**: research paper to architecture diagram converter 2026 – present

- Two-stage pipeline (PDF parsing and methodology extraction, then structured TikZ/SVG generation) producing publication-quality architecture diagrams. Funded by the Franklin CREATE! LAUNCH grant. Used by over 20 researchers.

**MyFixam**: AI marketplace for artisan services, Nigeria 2026 – present

Founder. MYFIXAM LTD; MyFixam, is an AI on-demand marketplace connecting Nigerians with verified artisans, plumbers, electricians, tailors, mechanics and 25+ trades, with payments held safely until the job is confirmed done.

**Omnnia**: AI-powered animated story generation 2025

- Generative pipeline transforming narrative input into animated short films via multimodal LLMs for scene decomposition, character-consistent image synthesis and image-to-video animation.

## Employment

**Stripe**, South San Francisco, California May – Aug 2025

*Machine Learning Engineer, Intern*

- Developed and deployed ML models for secret key leak detection, reducing detection latency from 4.5 days to under one hour and preventing multi-million-dollar annual fraud losses. Methodology filed as a patent application by Stripe.
- Engineered large-scale feature pipelines in Spark and Databricks (500M+ records across Iceberg tables), integrated with Shepherd and Airflow for production workflows.
- Expanded detection coverage by onboarding new API-call signals (OAuth, Connect), raising recall on confirmed leaks to 94%.

**University of Georgia**, Athens, Georgia Jan 2021 – present

*Graduate Teaching Assistant, School of Computing*

**Orbital Schools**, Ilorin, Nigeria May – Aug 2018

*Software Developer, Intern*

- Led development of dynamic websites on the LAMP stack; integrated PayStack and additional payment APIs.

## Teaching

Graduate Teaching Assistant, School of Computing, University of Georgia, January 2021 to present. Recipient of the Outstanding Graduate Teaching Assistant Award.

- **CSCI 4560/6560:** Evolutionary Computing*, with Dr. Khaled Rasheed* (taught three times, 120 students total)
- **CSCI 4720E:** Computer Architecture (70 students)
- **CSCI 1301 / 1301L:** Introduction to Computer Science (100 students)
- **CSCI 4800/6800:** Human-Computer Interaction*, with Dr. Michael Cotterell* (60 students)
- **CSCI 4800/6800:** Human-Computer Interaction*, with Dr. Ari Schlesinger* (60 students)
- **CSCI 4050/6050:** Software Engineering*, with Prof. Eman Saleh* (100 students)
- **CSCI 2670:** Theory of Computation*, with Prof. William Hollingsworth* (120 students)
- **CSCI 2670:** Theory of Computation*, with Prof. Shelby Funk* (60 students)
- **CSCI 1730:** Systems Programming*, with Prof. Sal LaMarca* (60 students)
- **CSCI 4150/6150:** Numerical Simulations*, with Prof. Sal LaMarca* (60 students)

## Peer Review

Reviewer for nine manuscripts across the following venues:

- IEEE International Conference on Tools with Artificial Intelligence (ICTAI) 2026
- Practice and Experience in Advanced Research Computing (PEARC) 2026

**Program Committee**

- IEEE International Conference on Tools with Artificial Intelligence (ICTAI) 2026
- Practice and Experience in Advanced Research Computing (PEARC), Presentation-only Abstracts 2026

**Invited Talks**

- Global Health Seminar Series, University of Georgia. Invited by Dr. J. Sekandi. *Forthcoming, Fall 2026.*
- "System Design with an AI Component," GlowAce Practical AI Training series, 28 March 2026.
- Broadcast interview, News Central TV, Nigeria, May 2026.
- "Breaking into Tech," Global Academy of Mathematical and Economic Sciences (GAMES) online workathon, 20 June 2020.
- "Building a Digital Skill Using Codelabs," Developer Student Club workshop, University of Ilorin, 15 December 2018.

**Mentorship and Service**

- Google Developer Student Lead, Unilorin, Sub-Saharan Africa, July 2018 – August 2019.
- Among the first cohort of Developer Student Leads selected in Nigeria. Mentored and taught students across 11 African countries in web and mobile development. Taught web and mobile design to over 1000 University Students
- Letter of Commendation, Google Developer Ecosystem Program Manager, 31 July 2019.

**Media Coverage**

**Independent media**

- The Nation (Nigeria), national newspaper. Coverage of the MedGemma Impact Challenge win and EpiCast, by Alao Abiodun, Senior Reporter, 15 April 2026.
- UrbanGeekz (United States). "Nigerian-Born PhD Student Wins $30K Google Contest With AI Tool for Early Disease Detection," by Clare Adamson, April 2026. Feature based on original interview.
- Brand Icon Image (Nigeria). Coverage of the award, April 2026.
- The African Startup Magazine. Feature on EpiCast and healthcare innovation, June 2026.
- News Central TV (Nigeria). Broadcast interview, May 2026.

**Institutional coverage**

- University of Georgia, 2026.
- Franklin College of Arts and Sciences, UGA. "Franklin School of Computing researcher secures international honor for AI innovation," 2026.
- Innovation at UGA, 2026.
- University of Ilorin, Nigeria, 2026.

**Technical Skills**

**Frameworks and tools:** PyTorch, TensorFlow, Hugging Face, LangChain, Spark, Databricks, Airflow, GGUF / llama.cpp, Docker, Git.

**Programming languages:** Python, C/C++, Java, JavaScript, SQL.

**Spoken languages:** English (fluent), Nigerian Pidgin (fluent), Igbo (fluent), Korean (conversational).