

Dr. Kevin A. McAlister

kmcalist1@gmail.com • kevinmcalister.org • github.com/kmcalist682336 • linkedin.com/in/kevin-mcalister-51aab0303 •
Atlanta, GA

SUMMARY

Probabilistic ML expert who builds production generative AI systems and leads applied AI education at scale. Director of Emory University's largest experiential data science program — a three-stage experiential continuum with 700+ participants and 150+ delivered projects for partners including Microsoft, Coca-Cola, UPS, and the City of Atlanta. Formerly Amazon experimentation infrastructure (Weblab); patented methodology for long-term effects in hypothesis testing. Author of *Priors All the Way Down*, a graduate textbook in progress on modern machine learning from probabilistic first principles.

PROFESSIONAL EXPERIENCE

Associate Teaching Professor — Emory University, Data and Decision Sciences

2020–Present

- Teach introductory and advanced courses in machine learning, generative AI, and applied data science; advise undergraduate and graduate students on research and career development.
- Lead institutional AI-in-the-classroom design: authored taskforce guidance and adopted course designs integrating required AI use with no-AI concept assessment (DATASCI 110, DATASCI 160, and other courses), replacing prohibition with designed usage.
- Converting DATASCI 447 into *Priors All the Way Down: Modern Machine Learning, From Foundations to Generative AI* (in progress; narrative summary at kevinmcalister.org).

Senior Faculty Fellow and Director of Experiential AI Programs — Emory Center for AI Learning

2022–Present

- Designed and built Emory's largest data science program: a three-stage continuum (AI.DataLab → AI.DataProd → AI.Xperience) taking students from first projects to high-stakes research and consulting delivery; 700+ participants, 150+ projects over four years.
- Run the organization end to end: project intake and scoping, stand-ups, stakeholder management, review standards, and student development and progression across all three stages.
- Partners include Microsoft, Coca-Cola, UPS, City of Atlanta Mayor's Office, Invest Atlanta, Emory Healthcare, Better Business Bureau, Techbridge, and the Government of Fayette County.

Data Scientist — Amazon

2013–2015

- Developed and maintained Weblab, Amazon's A/B experimentation platform: real-time conflict resolution between concurrent experiments and automated robot detection at scale.
- Patented methodology for determining long-term effects in statistical hypothesis testing (U.S. Patent 10,152,458 B1).

PRODUCTION GENERATIVE AI SYSTEMS

Grant Copilot — Census Data Assistant for Nonprofit Grant Writers

2025–Present

- Architected an LLM-powered pipeline making Census data usable by non-experts: Spatialite geographic gazetteer across nine geography levels, LLM query parsing on Vertex AI (zero data retention compliant), staged ingestion, and response synthesis.
- Designed for verifiability: the model interprets and drafts; numeric retrieval is deterministic and geographic resolution is gazetteer-backed — never generated.

Curatorial Language System (Michael C. Carlos Museum)

2024–Present, in production

- Built a human-in-the-loop pipeline that compresses curators' judgment into explicit writing rules: LLM zero-shot classification over the description corpus, human validation of extracted rules, then algorithmic application across existing artifacts.
- System is in production at the museum; enriched description dataset now powers AI audio tour companions personalized to visitor interests.

AI-Augmented Teaching Infrastructure (Emory)

2023–Present

- Built LLM-assisted grading extraction pipelines with human review gates for large-course assessment, and a per-student API key provisioning system (Azure OpenAI via OpenRouter BYOK) enabling safe cohort-wide LLM development.
- Run an AI-assisted content production workflow (Quarto, notebooks, figure pipelines) for course materials across three courses.

RESEARCH

ML & Sports Analytics Lab — Founder & Director

2025–Present

- *NFL kicker skill tracking*: Gaussian Process Dynamic Latent Variable Model with variational inference and bidirectional GRU amortization for smooth week-to-week skill ratings with online updates; significant improvement over EPA-based measures.
- *MLB pitch sequencing*: game-theoretic pitch selection with tendency models on pitcher/batter embeddings; novel UMAP-VAE pseudo-contrastive embeddings over all MLB pitches, 2023–present.
- *Active — NFL route style*: quantized autoencoders learning calibrated discrete latent representations of skill-position movement, mapped to analyst vocabulary, supporting counterfactual player-swap assessment.

Generative Modeling — Exact Single-Shot Generation

Active, early stage

- Lookup-free quantization’s natural probabilistic interpretation, supplemented with normalizing flows for exact mappings (up to probability) to a sampleable posterior.

SELECTED APPLIED PROJECTS

- **Structural damage detection from satellite imagery** (City of Atlanta, 2024): pipeline fusing parcel data, overhead imagery, and Street View labels; YOLO roof segmentation + SWIN damage prediction, 0.88 F1.
- **LIHTC optimization** (Invest Atlanta, 2025): RAG document-understanding pipeline, geographic scoring dashboard, and funding-approval prediction for federal tax credit applications.
- **Optimal EV rollout strategy** (UPS, 2023): fleet deployment plan matching diesel route data to EV capacity; interactive scenario dashboards.

TECHNICAL SKILLS

- **Generative AI**: LLM system design, RAG, evaluation frameworks, fine-tuning (LoRA), diffusion models, prompt engineering, agentic workflows; Vertex AI, Azure OpenAI, Anthropic API
- **ML/Statistics**: Bayesian inference, variational methods, Gaussian processes, deep learning (PyTorch, TensorFlow), causal inference, experimentation/A-B testing
- **Engineering**: Python, R, SQL, C++, Git, Docker, AWS, GCP; Quarto, Shiny

EDUCATION

University of Michigan — Ph.D. Political Methodology (Bayesian statistics & computational methods); M.A. 2020 Statistics

- John T. Williams Dissertation Prize, Society for Political Methodology

Washington University in St. Louis — M.A. Political Science

2013

University of North Carolina, Chapel Hill — B.A. Political Science / Public Policy / Statistics

2011

AWARDS

- Most Influential Professor, Emory University (2024, 2025) • Samuel Eldersveld Outstanding Paper Award, University of Michigan (2018–19)