

# Darian Nwankwo, Ph.D. | Curriculum Vitae

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- I am interested in the mathematical foundations of machine learning and AI and its application to scientific domains.
- **Research Interests:** Bayesian Optimization ◇ Machine Learning ◇ Artificial Intelligence ◇ Scientific Computing ◇ High-Performance Computing

## Professional Experience

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- **Founding Engineer (Contract)** **Remote**  
*ArcScore AI* *October 2025–Present*
  - Founding engineer for an NIL (name, image, and likeness) athlete-valuation platform; scoped the end-to-end system architecture spanning roughly a dozen coordinated layers, from data ingestion and storage to scoring, API, and web delivery.
  - Designed and implemented the core ArcScore scoring and NIL-valuation methodology (Performance and Marketability Indices), the company's primary differentiated intellectual property.
  - Built the product across a deployable web + API monorepo: a Next.js / React / TypeScript application and a provider-agnostic Python (SQLAlchemy, pandas) data pipeline behind a Python API service.
  - Provisioned and hardened production infrastructure on DigitalOcean (App Platform, managed Postgres, Arq + Valkey job queue) with Clerk authentication, Doppler secrets, Sentry and PostHog observability, and CI/CD across staging and production environments.
  - Owned the engineering roadmap end to end, organizing and driving the MVP-to-production initiative (6 projects, 47 issues) from prototype toward go-to-market.
- **Engineering Summer Mathematics Institute Associate** **Ithaca, NY**  
*Cornell University, Office of Inclusive Excellence* *May 2025–August 2025*
  - Supported the applied research component of the summer program, guiding 15 students through project-based learning in applied mathematics
  - Designed and led 10 professional development sessions, focusing on academic growth, career readiness, and self-advocacy for students.
- **Applied Research Intern** **Mountain View, CA**  
*LinkedIn* *May 2023–August 2023*

Project: [Confidential]

  - Collaborated with the Applied Research team to address a proprietary forecasting challenge related to 9-figure hardware allocation.
  - Developed a cutting-edge predictive model using Python, resulting in a remarkable 13.39% performance improvement over the existing methodology.
  - Contributed to the advancement of software engineering practices while maintaining strict adherence to confidentiality requirements.
  - Gained hands-on experience in model development, software engineering, and applied research in a dynamic industry environment.
- **Scientific Machine Learning Research Intern** **Austin, TX**  
*AMD Research* *May 2022–December 2022*

Project 1: Integrating Machine Learning in High-Performance Computing applications to reduce communication  
Project 2: Developing Scalable and Heterogeneous Accelerator Programming Environments for ML in High-Performance Computing Applications
- **Graduate Student Researcher** **Ithaca, NY**  
*Cornell University* *August 2018–Present*

Dissertation: Practical Algorithms for Multi-Step Lookahead Bayesian Optimization

- **Analog AI Research Intern** **San Jose, CA**  
*IBM Research* *May 2021–August 2021*  
 Project: Making the (Data-)Trains Run on Time: Towards Local Control of 2D-Mesh Routing for Analog AI
- **Dialog Systems, NLP and Automatic Speech Recognition Intern** **Ithaca, NY**  
*Adobe Research* *May 2018–August 2018*  
 Project: Integrating voice and gesture commands to manipulate 2D images.

## Technical and Professional Development

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Technical Skills.....

- **Programming Languages:** Proficient in: Julia, Python, TypeScript/JavaScript. Intermediate in: C++, SQL, Bash. Working Proficiency: R, Matlab
- **Frameworks & Infrastructure:** React/Next.js, FastAPI, SQLAlchemy, PostgreSQL, Docker, CI/CD, cloud deployment (DigitalOcean)

Professional Development.....

- **Alan Alda Center for Communicating Science** Mathematics Communication Workshop with Alda Center

## Education

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- **Cornell University** **Ithaca, NY**  
*PhD in Computer Science* *Aug. 2026*  
 Advisor: David Bindel; dissertation defended July 2026
- **Cornell University** **Ithaca, NY**  
*MSc in Computer Science*  
 Advisor: David Bindel
- **Morehouse College** **Atlanta, GA**  
*BS in Computer Science*  
 Advisor: Shelby Wilson

Patents, Publications & Presentations.....

- **Device And Method For Accelerating Physics-Based Simulations Using Artificial Intelligence** **Patent**  
*Patent #20250005236* *2025*  
 White, L., Nwankwo, D., Hora, G.
- **Differentiating Policies for Non-Myopic Bayesian Optimization** **Preprint**  
*arXiv* *2024*  
 Nwankwo, D., Bindel, D.
- **UQ Methods for ML-based Surrogate Models of Scientific Applications** **Workshop Paper**  
*NeurIPS 2022 Workshop Machine Learning and the Physical Sciences* *2022*  
 Basu, K., Hao, J., Hintz, D., Shah, D., Palmer, A., Hora, G., Nwankwo, D., White, L.
- **Strategies for Non-myopic Bayesian Optimization** **Presentation**  
*INFORMS 2022 Annual Meeting, Flash Paper* *2022*  
 Nwankwo, D., Bindel, D.

Select Awards and Honors.....

- **RTG: Dynamics, Probability, and Partial Differential Equations in Pure and Applied Math** **Spring 2021**  
*Cornell University*
- **National GEM Consortium Fellowship** **Fall 2018 – Spring 2019**  
*Cornell University*