

Matthew E. Baughman

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Education

Ph.D. in Computer Science | *University of Chicago* 2019 – 2025

- Advisors: Ian Foster and Kyle Chard | Ph.D. Dissertation: “Enabling Multi-System Workflows with Serverless Computing”
- MS, Computer Science: Systems; August, 2021; Thesis: “Profiling, Predicting, and Provisioning for Cost-Aware Computing”

B.Sc. and B.A. in Computational Analysis and Ethics & Law | *Minerva University* 2015 – 2019

- Member of the Inaugural Class, studying and working in San Francisco, CA and five international locations

Experience

Associate Computational Scientist & Postdoc | *Princeton Plasma Physics Laboratory & Princeton University* 2025 – present

- Develop novel agentic patterns and infrastructure for deployment across DOE as part of the Genesis Mission.
- Research and build novel foundation models for domain sciences, particularly focusing on applications in fusion.
- Co-lead significant AI4Science initiatives within Genesis with direct oversight by Appointee-level officials.

Research and Teaching Assistant | *The University of Chicago – Globus Labs* 2017 – 2025

- Acted as primary researcher for multiple projects within the fields of machine learning, supercomputing, and optimization.
- Contributed to the AuroraGPT project, a DOE-backed initiative to build trillion-parameter AI models for science.
- Assisted in the development and instruction of masters-level coursework on industry-facing distributed computing.

Laboratory Coordinator | *The University of Chicago – Data Science Institute* 2021 – 2025

- Coordinated a research-based summer program for high school through masters-level students at UChicago.

Technical Curriculum Consultant | *Accenture* 2020

- Developed educational materials on state-of-the-art methods in time series analysis to inform firm leadership of current trends.

Corporate Finance Intern | *Allen and Company* 2018

- Developed and managed data warehouses and presentations on small deal teams for public-public acquisitions.

Summer Research Intern | *Argonne National Laboratory* 2017

- Researched and developed novel algorithms to accelerate machine learning systems for cancer applications on supercomputers.

Analysis Intern | *Opinary GmbH* 2016 – 2017

- Designed and implemented a data-driven recommender system to drive engagement for the company’s online polling platform.

Student Consultant | *Ministry of Education–Argentina* 2017

Research Intern | *Google Research* 2015

Featured Publications and Presentations

- Baughman et al. “STELLAR-AI: Smart Surrogates and Training Foundation Models at Scale.” *Presented at AI+ Expo, 2026.*
- Baughman et al. “Adaptive Task Management: Automating Workload Distribution Across Computing Sites.” *In submission.*
- Hudson, Pauloski, and Baughman et al. “Trillion Parameter AI Serving Infrastructure for Science.” *BDCAT, 2023.*
- Baughman et al. “Balancing Federated Learning Trade-Offs for Heterogeneous Environments.” *PerCom, 2023.*
- Kotsehub and Baughman et al. “FLoX: Federated Learning with FaaS at the Edge.” *eScience, 2022.*

Skills

- **Areas of Expertise:** Cost-aware computing, serverless computing, AI applications, self-adaptive systems, supercomputing
- **Programming Languages and Frameworks:** Python, R, SQL, Bash, PyTorch, Tensorflow, Docker, Globus, SLURM

Honors and Awards

- Cerebras Fellow, 2025
- Best Paper, IEEE Internet Computing Journal, 2023
- Best Paper, Pervasive Computing Conference, 2023
- UChicago Science Policy Fellow, 2023
- Department of Energy Scholar, 2022
- UChicago John Crerar Scholar, 2019-20