John Cummings, PhD, Data Scientist

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ABOUT ME, OBJECTIVE

I use my exceptional foundation in applied mathematics and programming over the past ten years to provide solutions in data science, machine learning engineering, and data engineering.

My **objective** is to obtain a data scientist or machine learning engineer position where I can use my knowledge of data science, programming, mathematics, and statistics to build practical machine learning tools.

SKILLS

I have expertise in data science, machine learning, programming, applied mathematics, statistics, neural networks, regression, forecasting, simulation, statistical modeling, clustering, gradient boosting and decision trees, deep learning, data analytics
using tools such as Python, SQL, XGBoost, NumPy, SciPy, Matplotlib, Plotly, Pandas, Scikit-learn, PyTorch, Git, Jupyter Notebooks, MLFlow, Azure, Google Cloud Platform, Vertex AI, Azure ML, PySpark

EDUCATION

The University of Tennessee **December 2017**
Ph.D. Applied Mathematics, M.S. Applied Mathematics *Knoxville, TN*

Georgia Institute of Technology **May 2011**
B.S. Applied Mathematics, B.S. Civil Engineering *Atlanta, GA*

WORK EXPERIENCE

UPS Capital, Data Scientist, Alpharetta GA **July 2024 - Present**

Description: I leverage advanced data science and machine learning tools to

- Construct machine learning models to predict when addresses and their neighbors will receive packages to provide UPS with the ability to give dynamic prices to customers.
- Using Dataflow pipelines and Google BigQuery, apply fixed-radius nearest neighbor algorithms to more than 100 million addresses to use the previously mentioned forecasting models on groups of addresses.
- Containerize via docker and deploy a wide variety of machine learning tasks. Examples include training pipelines via vertex AI and Kubeflow pipelines, natural language processing (NLP), image similarity search, scheduled data jobs via Google Cloud run, and more.

MTech Systems, Data Scientist, Atlanta GA **May 2022 – January 2024**

Description: I trained and deployed learning solutions for Sonar, MTech's IoT SaaS product, providing insights to farmers on thousands of farms at a given moment, each containing tens of thousands of chickens. While at MTech, I

- Developed machine learning models using Python and libraries such as XGBoost, Scikit-learn, Pandas, SQL, and more to analyze sensor data, providing inference and predictive models for our clients.
- Deployed my machine learning models that introduced new features for our product and improved upon existing features using scalable cloud solutions written using Python querying our SQL/NoSQL databases.
- Analyzed data, found trends, and maintained communication with company stakeholders regarding the

development of our product using these data to address our business needs and strategies.
- Conducted ad-hoc analyses for various value-generating reports such as analysis of strategies optimizing flock performance and swiftly identifying sensor hardware issues.
- Communicated results and insights to non-technical audiences using analysis tools such as Matplotlib/Plotly visualizations, SHAP game-theoretic feature analysis, partial dependency plots, and causal inference.

University of North Georgia, Assistant Professor, Gainesville GA **August 2018 - May 2022**

Description: As a tenure-track assistant professor of mathematics at UNG, I
- Won the UNG Presidential Summer Incentive Award where I created numerical solvers for fluid flow problems in C++ using the deal.II finite element library.
- Won an MAA Project NExT Fellowship in which I adopted and improved classroom methodologies resulting in outstanding teaching as evidenced by my students' evaluations and peer observation.
- Collaborated with colleagues on mathematical research into numerical solvers for partial differential equations modeling fluid flow, managed research projects for upper-level mathematics students, and completed professional development programs to improve my teaching and research.
- Implemented effective pedagogical techniques to teach four classes per semester such as statistics, ordinary differential equations, numerical analysis, calculus, and more to approximately 80 students per semester.
- Served on numerous committees to complete services needed by the university such as hiring new faculty, fostering community within the department, and contributing to the effective operation of our annual mathematics competition, among other services.

Berry College, Visiting Assistant Professor, Rome GA **August 2017 - May 2018**

Description: During this one-year visiting appointment as an assistant professor of mathematics, I
- Published an interdisciplinary paper on the modeling of organic photovoltaics using efficient numerical solvers written in Fortran 90.
- Mentored a group of students to a second-place finish in the local chapter of the national ordinary differential equations competition SIMIODE hosted by SCUDEM.
- Taught four classes a semester including ordinary differential equations, business calculus, and numerical analysis to 80 students per semester.
- Applied state-of-the-art numerical methods to solve nonlinear parabolic partial differential equations.