Michael J. Simons

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Education & Relevant Coursework

B.A in Mathematics, *University at Buffalo (May 2024)*
Concentrations in Computing & Applied Mathematics

Mathematics Courses: College Calculus 1-3, Linear Algebra, Differential Equations, Survey of Multivariate Calculus, Survey of Partial Differential Equations, Number Systems, Mathematical & Scientific Computing, Probability for Engineers, Data-Oriented Computing for Mathematics, Theory of Games, Numerical Analysis, Abstract Algebra

Computer Science Courses: Computer Science I & II, Internet of Things, Discrete Structures, Data Structures, Systems Programming, Algorithms & Complexity, Programming Languages, Software Engineering Concepts, Processing of Strings & Sequences, Data Models & Query Languages, Data Intensive Computing, Machine Learning, Reinforcement Learning

Work Experience

IT Intern (*May - August, 2022 & 2023*)
Monroe-Woodbury Microcomputing Center, *Harriman, NY*
• Assisted Superintendent for Compliance and Information Systems to support network infrastructure upgrades and security.
• Installed and maintained networking equipment, operating systems, and software applications, providing consistent performance across multiple platforms.

Customer Service Associate (*November 2017 - July 2019*)
BJ's Wholesale Club, *Monroe, NY*
• Helped customers with purchases, product inquiries and membership services, ensuring a high level of satisfaction.
• Trained new team members on company policies, best practices, and customer interaction skills.

Software Proficiencies

Programming Languages:
Python, R, Java, C++, Javascript, SQL, HTML/CSS

Data Science & Machine Learning Packages:
NumPy, SciPy, Pandas, Matplotlib, Seaborn, Selenium, BeautifulSoup, OpenCV, Pickle, Scikit-learn, TensorFlow, Keras, PyTorch, OpenAI Gym, Stable Baselines3

Processing Frameworks & Cloud Platforms:
Spark, Hadoop, Amazon Web Services, Azure

Development & Deployment Tools:
Git, Docker, Visual Studio Code, IntelliJ

Document Creation:
Microsoft Office Suite, LaTeX, Python Notebooks

Methodology & Practices:
ETL, Agile, UML, Version Control

About

Intellectual curiosity has instilled in me a deep-seated appreciation for practical applications of mathematics in technology. I am particularly drawn to the power of artificial intelligence in engineering innovative solutions to real-world challenges.

Core Technical Skills

Machine Learning:

Regression Analysis	*Clustering & Classification*
Image Processing	*Natural Language Processing*
Deep Learning	*Reinforcement Learning*

Data Analytics:

Data Visualization	*Descriptive Analysis*
Predictive Modeling	*Structural Methods*
Statistical Methods	*Large-Scale Processing*

Applied Mathematics:

Computational Theory	*Mathematical Modeling*
Numerical Methods	*Probability*

Algorithm Design:

Sorting Algorithms	*Complexity Analysis*
Search Algorithms	*Graph Theory*
String Algorithms	*Dynamic Programming*

Technical Communication:

Oral Presentations	*Reports & Documentation*

Projects

Data Science & Computational Mathematics Portfolio
mjsimons.com/portfolio
• Showcases practical application of data analysis, machine learning, scientific computing, and numerical methods through a selection of literate-programming style technical reports developed in Jupyter Notebook.

Algorithm Visualizer
mjsimons.com/algorithm_visualizer
• Designed and implemented a web application to visualize and contrast the efficiency of various graph algorithms for solving randomized mazes. Algorithms include Dijkstra's, A*, Breadth-First Search, Depth-First Search, and Bidirectional Search.
• Collaboratively developed *Bisective Funnel Search*: a novel search algorithm that bisects the search space into two regions while remaining fully connected, often resembling a funnel of visited nodes situated around the optimal path.