Matthew Yang

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Education

Georgia Institute of Technology — Atlanta, GA
B.S./M.S. in Computer Science, GPA: 4.0 — *Expected: Dec 2021*

- **Past Coursework**: Machine Learning, Graph Theory, Linear Algebra II, Robotics & Perception, Intro to AI
- **Fall 2020 Coursework**: Grad Deep Learning, Intro to Grad Algorithms, Automata & Complexity

Thomas S. Wootton High School — Rockville, MD
GPA: 4.61, ACT: 36 — *Graduated May 2018*

Skills

Languages: Python, Java, Matlab, C++ (Basic), HTML/CSS/JavaScript
Technologies: Dash, Flask, React, AWS (DynamoDB, S3, Lambda, SSM, EC2, etc.)
Python/ML Libraries: PyTorch, NumPy, scikit-learn/SciPy, pandas, Plotly, Matplotlib, Keras (Basic)

Experience

Amazon — Seattle, WA
Software Development Engineering Intern — *May 2020 – August 2020*

- Worked on highly confidential project (next-gen device)
- Leveraged AWS EC2, S3, DynamoDB, Systems Manager, and CloudWatch, to automate data processing for ML pipeline—saving 3 hours/session (10,000+ sessions in future)
- Revamped an audio processing procedure to increase accuracy on a key metric from ∼20% to ∼98%
- Optimized the runtime of other (confidential) algorithms by an average of ∼40%
- Created a secure end-to-end solution that allows for our research studies to be conducted in a WFH environment

Data-Driven Education Team (VIP Program) — Atlanta, GA
Lead Software Engineer / Project Manager — *August 2019 – Present*

- Worked on project JITI (Just-In-Time-Intervention) to predict student grade outcomes for Georgia Tech online MS courses using edX clickstream data, piazza forum data, and assignment data—stored in PSQL & MongoDB
- Oversaw the JITI sub-team: managed development timeline, distributed tasks, and onboarded new members
- Led the development of an app for students and professors that integrates insights from previously trained models
- Used Python Dash (by Plotly) to build core features of the application, including the grade prediction and data vis.
- Performed data wrangling and model training, w/ best model achieving +/- 12 grade points at the midterm

Entertainment Intelligence Lab — Atlanta, GA
Undergraduate Research Assistant (Dr. Mark Riedl's lab) — *August 2020 - Current*

- Applying deep reinforcement learning agents to popular multiplayer games such as Minecraft—creating SOA algorithms that can adapt to unknown novelty in games without needing human intervention
- Creating API platforms that allow for high-speed game simulation and reinforcement learning training

Georgia Tech College of Computing — Atlanta, GA
Intro to Artificial Intelligence TA (CS 3600) under Dr. Mark Riedl and David Kent — *August 2020 – Present*

Private Tutor — Rockville, MD
Tutor — *July 2017 - June 2018*

National Oceanic and Atmospheric Administration — Silver Spring, MD
Intern — *Summer 2016 and 2017*

Projects

- **Citadel Datathon (Python, scikit-learn, Matplotlib, Seaborn)**: Week long datathon, performed data analysis on the socioeconomic effects of hosting the Olympic Games—focused on regional impact and public health perspective.
- **Robot Vision (Python, SciPy, GTSAM, Colab)**: Implemented robotics algorithms including: SLAM on LiDAR scans (using ICP + GTSAM), lane detection, inverse kinematics, differential drive, etc.
- **Space Trader Game (Flask, React, Python)**: Created a web video game as a 5-person group project.
- **Ranking Calculator (Java)**: Ranks video game players using Massey's method (former BCS ranking algorithm).