

NICHOLAS PETOSA

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EDUCATION

AUG 2018 – DEC 2019 **Georgia Institute of Technology – M.S. in Computer Science – GPA: 4.0/4.0**

- Specialization in Machine Learning.

2015 – 2018 **Georgia Institute of Technology – B.S. in Computer Science – GPA: 4.0/4.0**

- Concentrations in Artificial Intelligence and System Architecture.

EXPERIENCE

SUMMER 2019 **Two Sigma – Software Engineer Intern – *Alpha Insights***

- **Machine Learning.** Awaiting authorization to discuss details of intern project.

SUMMER 2018 **Microsoft – Software Engineer Intern – *PowerBI Advanced Analytics***

- **Deep Learning.** Designed and trained a deep Keras LSTM network to predict English descriptions of arbitrary data visualizations with 95% accuracy. Trained on synthetic data and validated on real data.
- **Transparent Modeling.** Created an application that won 2nd place in the AI & Ethics category of Microsoft's 2018 week-long global company hackathon. The application trains and visualizes deep PyTorch general additive models (GAMs) to build transparent, accountable models of data.

SUMMER 2017 **Amazon – Software Development Engineer Intern – *Customer Account Protection***

- **Machine Learning.** Integrated a random forest classifier into Amazon's production sign-in systems, which handles millions of sign-ins per day. The model predicts whether clusters of customers are malicious and suggests disciplinary action to Amazon fraud investigators. Used scikit-learn and Weka.
- **Data Visualization.** Created interactive suspicious account cluster visualization using d3.js. Integrated internally into dashboard used by hundreds of Amazon fraud investigators.

SUMMER 2016 **Cisco – Software Engineer Intern – *Global Support Experience***

- **Data Science.** Created an internal web app using R and Shiny for measuring partner performance. Cisco executives estimated the tool would save \$150k per quarter.
- **Web Development.** Redesigned a service wrapper with high visibility within Cisco with Java Spring.

RESEARCH

JAN 2018 - PRESENT **Graduate Research Assistant – Georgia Tech – *Quantitative Software Research Group***

- Research the application of deep learning techniques to quantitative finance under Dr. Tucker Balch, focusing on time series classification and deep reinforcement learning.
- Implemented a deep Q-learning trading agent from scratch using Keras and Zipline. Agent was trained using walk-forward validation over historical price data. Results were presented at QuantCon 2018.
- Implemented AlphaZero in Python, investigating applications to a stock exchange simulation.

AUG 2016 - AUG 2017 **Undergraduate Research Assistant – Georgia Tech – *Sherrill Group***

- Designed, developed, and implemented a Python Flask service and MongoDB back-end for PSI4, a popular quantum chemistry research package. Published undergraduate thesis on this research.

ADDITIONAL EXPERIENCE

AUG 2018 - PRESENT **Graduate Teaching Assistant – Georgia Tech – CS 7646: *Machine Learning for Trading***

- Grade assignments, answer questions, and hold regular office hours for the course.

SPRING 2017 **Google CodeU Participant**

- A Google invite-only program. Worked remotely with a small group of peers to create a messenger web app over the 12-week program. Participated in regular code reviews with a Google engineer.

AWARDS

2nd Place (Home Depot Deep Learning Hackathon 2018) • FINRA Data Analysis Prize (HackGT Hackathon 2017)

1st Place (Coca-Cola Hackathon 2016) • Firebase Prize (MHacks Hackathon 2016) • 1st Place (SwampHacks Hackaton 2016)

SKILLS

Programming Languages – Python, Java, JavaScript, C

Tools & Platforms – PyTorch, Keras, TensorFlow, CNTK, d3.js, scikit-learn, Flask, Git

Areas of Interest – Quantitative Finance, Deep Learning, Machine Learning, Artificial Intelligence, Data Visualization