NICHOLAS PETOSA

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EDUCATION

Georgia Institute of Technology, M.S. in Computer Science — August 2018 – December 2019
Specialization in Machine Learning — **GPA: 4.0/4.0**

Georgia Institute of Technology, B.S. in Computer Science — August 2015 – May 2018
Concentrations in Artificial Intelligence and System Architecture — **GPA: 4.0/4.0**

EXPERIENCE

Two Sigma — May 2019 – August 2019
Software Engineer Intern – Alpha Insights Team — *New York, NY*
- **Machine Learning.** Awaiting approval to discuss project content.

Microsoft — May 2018 – August 2018
Software Engineer Intern – PowerBI Advanced Analytics Team — *Redmond, WA*
- **Deep Learning.** Designed and trained a deep Keras LSTM classifier to predict English descriptions of arbitrary data visualizations with 95% accuracy. Trained on generated synthetic data and validated on real-world data.
- **Interpretable AI.** Created a web app that won 2nd place in the AI & Ethics category of Microsoft's 2018 week-long global company hackathon. The web app trains and visualizes deep PyTorch general additive models (GAMs) to build human-interpretable models.

Amazon — May 2017 – July 2017
Software Development Engineer Intern – Customer Account Protection Team — *Seattle, WA*
- **Fraud Detection.** Integrated a random forest classifier into Amazon's production sign-in systems, which handle millions of sign-ins per day. Model predicts if a customer cluster is malicious and surfaces predictions to fraud investigators. Used scikit-learn and Weka.
- **Data Visualization.** Created an account cluster d3.js visualization within dashboard used by hundreds of Amazon fraud investigators.

Cisco — May 2016 – August 2016
Software Engineer Intern – Global Support Experience Team — *Research Triangle Park, NC*
- **Data Science.** Created an R web app that visualizes partner performance. Executives estimated the tool would save $150k/quarter.
- **Web Development.** Redesigned a service wrapper with high visibility within Cisco with Java Spring.

Georgia Tech Graduate Teaching Assistant, CS 7646 Machine Learning for Trading — August 2018 – Present
- Grade assignments, answer questions, and hold regular office hours for the course.

RESEARCH

Georgia Tech Graduate Research Assistant, Quantitative Software Research Group — January 2018 – Present
- Research deep learning applied to quantitative finance under Dr. Tucker Balch, focus on timeseries classification and deep RL.
- Created a deep Q-learning trading agent with Keras. Agent was trained using walk-forward validation over historical price data.
- Implemented AlphaZero from scratch in Python, currently investigating applications to a stock market exchange simulator.

Georgia Tech Undergraduate Research Assistant, Sherrill Group — August 2016 – August 2017
- Developed a Flask app with MongoDB backend for a chemistry research package, published undergrad thesis on this research.

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 Hackathon 2016)**

SKILLS

Programming Languages – Python, Java, JavaScript, C
Tools & Frameworks – PyTorch, Keras, TensorFlow, CNTK, d3.js, scikit-learn, Flask, Git
Areas of Interest – Quantitative Finance, Deep Learning, Machine Learning, Artificial Intelligence, Data Visualization