

Nathan Stefanik

+14048346598 | nstefanik@gatech.edu | nathanstefanik.github.io | github.com/nathanstefanik

Summary

Dual major in math and computer science with a passion for research. Experienced in leading project teams in critical thinking to help generate creative solutions to challenging problems.

- Research interests include deep learning and natural language processing
- Working knowledge of machine learning, encryption, and cyber security
- Collaborates well with others. Effective project leader
- Creative and versatile in applying math and building models to solve complex problems

Education

Georgia Institute of Technology

Atlanta, GA

BS IN MATHEMATICS & COMPUTER SCIENCE, GPA: 3.6/4

Expected Dec 2022

- **Highest Honors**
- Concentration in Machine Learning and Enterprise Computing
- **Notable Math Courses:** Real Algebraic Geometry & Optimization, Algebraic Topology, Statistical Theory, Probability Theory, Real Analysis, Complex Analysis, Abstract Algebra
- **Notable CS Courses:** Database System Implementations, Deep Learning, Machine Learning, Honors Algorithms, Intro to AI, Computer Systems & Networks

Experience

Invesco Ltd

Atlanta, GA

INFO RISK AND CONTROLS INTERN

June - August 2022

- Provided key insights to Global Risk and Controls team using data analysis
- Built incident ticket classification model using Doc2Vec and GMM with 70% accuracy
- Built software applications using PowerApps for internal risk management and control validation
- Processed large datasets in Python from Microsoft SQL Server using pyodbc

GT School of Math

Atlanta, GA

GRADER FOR LINEAR ALGEBRA II

Fall 2021

- Graded problem sets and progress for over 70 students
- Created answer key/rubric for assignments

Ascent Math

Dunwoody, GA

FOUNDER

May 2016 - Present

- Founded tutoring company focusing on peer instruction and consolidated local tutors under one network
- Created and led a summer camp for remedial math and advanced math for middle and high school students
- One-on-one instruction for math up to multivariable calculus and physics

Projects

Initial Orbit Determinations in Projective Geometry

GT School of Math

RESEARCHER

January 2022 - PRESENT

- Developing algebraic and numerical algorithms for Initial Orbit Detection (IOD) of objects in space using MATLAB and Macaulay2
- Researching tools in algebraic projective geometry to formalize methods

Course2Career

Database Systems Course

SOFTWARE DEVELOPER

Aug - Dec 2022

- Built course-to-industry-skill mapping web application using Rocket
- Built complex queries using SeaORM to help generate graph visualizations of data

The Conway Knot is not Slice

GT Directed Reading Program

MENTEE

Fall 2022

- Followed Piccirillo's proof on the Conway knot and sliceness
- Studied Morse theory, handle attachments, knot concordance, and knot frames and traces

What Should I Add to My Playlist?

Machine Learning Course

RESEARCHER

Aug - Dec 2022

- Trained linear regression, lasso regression, random forest on spotify millions playlist dataset for next-song recommendation
- Created deep learning model using Conv2d and other layers using tensorflow/keras

Financial Sentiment Analysis

GT AI Research Group -

RESEARCHER

January 2021 - May 2022

- Proposed and implemented solutions in investment portfolio management theory
- (Tensorflow/Keras) Built feed forward neural network to predict price movement on tech stocks with 60% accuracy
- Building VADER sentiment analysis model on relevant Tweets to aid in retail trading decisions (Work in progress)

Music Generation with Transformers

Deep Learning Course

RESEARCHER

Spring 2022

- Trained deep learning models on Bach's Well Tempered Klavier to generate new music
- Built model using Google Brain Magenta music transformer with custom layers using tensor2tensor library
- Built RNN and LSTM models using PyTorch

Solving High Dimensionality Problems in Data Preprocessing

GT AI Research Group

RESEARCHER

Spring 2021

- Built Python scripts to scrape financial data
- Developed modules to process data using tools such as Support Vector Machines, Principal Component Analysis, and K-Nearest Neighbors

Tropical Geometry/Combinatorics

GT School of Math

RESEARCHER

Jan 2021 - May 2021

- Conducted literature review on intersection of tropical geometry and optimization problems
- Solved problems in combinatorics using tropical determinants and eigenvalues

Skills

DBMS/APIs Microsoft SQL Server, MySQL, PostgreSQL, Rocket

Languages Python, C++, C, MATLAB, Java, Rust, SQL

Python Libraries Tensorflow, Keras, PyTorch, Scikit-learn, SciPy, NumPy, Pandas, Matplotlib

Honors & Awards

2018-22 **Scholarship Recipient**, Zell Miller Scholarship

Atlanta, Georgia

Extracurriculars

GT AI Safety Initiative

MEMBER

Sep 2022 - PRESENT

- Collaborated in AI Technical Safety seminar and planned team project in examining bias in machine learning models

GreyHat Cybersecurity Club

MEMBER

Jan 2021 - PRESENT

- Contributed to weekly lectures in cybersecurity and completed club's cybersecurity demonstrations