Matthew Yuan

github.com/code-by-matt
my4@princeton.edu
609-216-0038

Education

Princeton University, Princeton, NJ   September 2017–May 2021 (Expected)
 – Bachelor of Arts (A.B.) in Mathematics, 3.8 GPA.
 – Coursework includes Algorithms and Data Structures, Probability and Stochastic Systems, Computational Geometry, Linear Algebra, Multivariable Calculus, Combinatorics, Real Analysis, and Fourier Analysis.

Machine Learning by Stanford University, coursera.org/learn/machine-learning   May 2019–August 2019
 – Studied supervised and unsupervised learning algorithms: linear regression, logistic regression, neural networks, support vector machines (SVMs), k-means clustering, principal component analysis (PCA), anomaly detection.
 – Studied tools to evaluate and debug machine learning systems: bias/variance, learning curves, error analysis, ceiling analysis.

Skills

Programming Languages and Frameworks
 – Java, Python, HTML/CSS, JavaScript, Node.js, Express, Socket.io, Cypress, Django, PostgreSQL, Bootstrap, Git, Heroku, LaTeX.

Concepts
 – Object-Oriented Programming, Machine Learning, Mathematical Reasoning, Teaching.

Languages
 – English, Mandarin.

Experience

Algebraic Geometry Research under Professor János Kollár, Princeton University   June 2019–August 2019
 – Studied the connection between ideals of polynomial rings and algebraic varieties in affine and projective space.
 – Met weekly with Prof. Kollár as part of a 7-person research group.

Course Assistant, Princeton University   September 2018–May 2019
 – Led weekly problem sessions for about 50 students in Real Analysis and Linear Algebra.
 – Helped students understand complex mathematical ideas and guided students through homework problems.

Projects

Thue-Morse Connect Four, tmc4.herokuapp.com   October 2018–August 2019
 – Built a variant of Connect Four to explore what happens when players take turns following the Thue-Morse sequence. Intended to eliminate the game's first-player advantage. Two users can play each other on two different devices in real-time.
 – Started work in Python/Django, then switched to Node.js/Express with Socket.io, using Cypress for testing.

Seam Carving, class project   April 2019
 – Implemented an image resizing algorithm in Java that preserves an image's content without cropping or stretching.
 – Achieved by using Dijkstra's algorithm to find minimal-energy seams in an image.

Activities

Author in Princeton Undergraduate Research Journal, bit.ly/2W72vBR   Spring 2019
 – Presented a creative, narrative explanation of Carl Friedrich Gauss's discovery that the regular seventeen-sided polygon is constructible using a compass and straightedge.
 – Driven by curiosity and a desire to understand the real-world historical context of Gauss's work.
 – 1 of 5 papers selected for publication out of 23 total submissions.

Editor of Profiles in Entrepreneurship, medium.com/profiles-in-entrepreneurship   October 2018–December 2019
 – Managed a team of 4 writers for an intercollegiate publication that provides student entrepreneurs actionable advice from startup founders and VCs.
 – Produced over 30 articles in the 2018–2019 school year.