

Joe Hollander

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Passionate high school student with exceptional quantitative abilities and strong interests in mathematics, finance, and computational problem-solving.

EDUCATION

South Burlington High School

High Honors (Current GPA: 3.99/4.0), PSAT (1520/1520)

South Burlington, VT

August 2022–Present

Relevant Coursework: AP Calculus BC (Exam Score: 5/5)

University of Vermont

GPA: 4.0/4.0

Burlington, VT

July 2024

Relevant Coursework: Calculus III (Multivariable Calculus)

PROJECTS

KAGGLE COMPETITIONS

- Applied advanced data cleaning techniques including imputation, Principal Component Analysis, statistical replacement, and normalization
- Implemented and optimized machine learning models including Random Forest, Clustering, and Ensemble methods for competitive prediction challenges
- Created insightful data visualizations using matplotlib and seaborn to identify key patterns and correlations in complex datasets
- Applied mathematical principles to feature engineering and model evaluation

OPTIONS PRICING MODELS

- Implemented the Black-Scholes model to calculate theoretical values of European options with precision
- Developed interactive visualizations demonstrating how changes in underlying prices affect option valuations
- Created graphical representations of option strategies to analyze risk-reward relationships
- Built Binomial Tree models to accurately price both American and European style options

CRYPTOCURRENCY DATA COLLECTION

- Engineered efficient data collection systems using Websocket and REST APIs to gather comprehensive market data from Kraken exchange
- Developed asynchronous Python architecture to process and display real-time orderbook data and market statistics
- Optimized data storage solutions using Parquet file format and Git version control for large-scale financial datasets
- Applied mathematical analysis to interpret market microstructure patterns

AUTOMATED SCORE SHEET GENERATOR

- Designed and implemented an automated system to generate comprehensive soccer game score sheets, significantly improving organizational efficiency
- Applied web scraping techniques with Selenium and BeautifulSoup to extract and process structured sports data
- Utilized Pandas for advanced data cleaning, transformation, and statistical aggregation
- Created a PDF generation pipeline with PDFkit for producing professional, publication-ready documents

EXTRACURRICULARS

- **Math League** (2022-2025): Member of championship team with four consecutive regional victories. Elected Team Captain (2025)
- **Soccer**

AWARDS

- **Math League 7th Place Individual Award** (2025): Recognized for mathematical problem-solving abilities
- **National Merit Semifinalist**: Perfect PSAT score

SKILLS

- **Programming:** Python 3 (NumPy, Pandas, Matplotlib)
- **Data Science:** Machine Learning (Scikit-learn, PyTorch), Statistical Analysis
- **Software Development:** Git Version Control, Docker Containerization