Tyler Gorczycki

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EDUCATION

Florida State University, College of Arts and Sciences Tallahassee, Florida
Bachelors of Science in Applied Mathematics *2021-2025*
Honors/Awards: FSU Honors Program, Bright Futures Medallion Scholarship (75% tuition)
Contests: Jane Street Monthly Puzzle May-2024 Correct Submission
Courses: Real Analysis 1-2, Financial Math 1 (G), Monte Carlo Methods in Financial Math (G)

EXPERIENCE

Florida State University, Mathematics REU Tallahassee, Florida
Undergraduate Researcher *May 2024 - Aug 2024*
- Calibrated a linear combination of polynomials derived from the Signature Method as defined by Dr. Terry Lyons' Rough Path Theory, the basis of the method being iterated Stratonovich Integrals, alongside my undergraduate research partner
- Applied our model to calibration towards equity spot price, spot volatility, and to European option contracts, using real market data as well as simulated data for assessment. Built upon a model for calibrating to volatility surfaces
- Worked under our Research Advisor Dr. Qi Feng, funded by the NSF, link to paper

Florida State University, Department of Mathematics Tallahassee, Florida
Undergraduate Teaching Assistant *Sep 2023 - Dec 2023*
- TA for Dr. Bryce Morsky's Calculus 1 Course, one of four TAs responsible for student guidance
- Assisted students with weekly help sessions in tutoring center, proctored midterms and final
- Helped Professor during weekly recitation period, as well as guidance for assignments/quizzes

Vineyard Capital Tallahassee, Florida
Private Equity Summer Analyst *May 2023 – Aug 2023*
- Assisted in Financial Analysis to support Acquisitions for Funeral Homes/Dental Practices
- Facilitated the Re-structure of several Portfolio Companies' accounting systems
- Contributed to what is internally known as "Level 1 Summary Analyses", detailing financial health of the companies being sourced. Included calculating EBITDA / EBITDA Multiples, etc.

PROJECTS

Q-Learning with Snake
- Used Object-Oriented Programming Principles in C++ to create a real-time snake game
- Began with Epsilon-Greedy policy to always reduce distance to food, followed by implementation of Q-learning, with state-space consisting of distance to walls/food, and self-collision monitoring
- Trained over 400+ games, with the best game achieving a score of 30, repository here

Online Option Pricer
- Implemented Black-Scholes equation in Python to compute a European option's theoretical value
- Employed Streamlit to serve as renderer, allowed for user defined parameters and introduced visual grid of theoretical value, compared output values to that of the Heston model, repository here

Orbital Mechanics
- In C++, Adopted the Verlet Integration as a numerical method for Newton's equations of motion
- Employed in the context of simulating the Moon orbiting the Sun, allowed for user-defined initial direction, radius, and speed to witness the delicacy of a stable orbit. Repository here

SKILLS, CERTIFICATIONS

Bloomberg Market Concepts, Akuna Capital Options 101, Akuna Capital Options 201