Bryce Pyburn

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Education

Georgia Institute of Technology — Atlanta, GA
B.S. in Mathematics, Double Minor in Fintech and Economics — *Aug. 2024 – May 2028*

- GPA: 4.0
- Coursework: Probability Theory, Applied Combinatorics, Game Theory, Numerical Analysis, Linear Algebra (I & II), Object-Oriented Programming, Differential Equations (Peer Tutor)
- Affiliations: Center for Finance and Technology Scholar, GT Trading Club, Undergraduate Consulting Club

Experience

U.S. Department of Defense — Fort Meade, MD
Cryptography Intern (Incoming) — *Aug. 2026 – Dec. 2026*

GT Interfraternity Council — Atlanta, GA
Advancement Director — *Jan. 2025 – Present*

- Reduced Fraternity Excellence Award processing time by 83% by redesigning calculation framework and scoring process.
- Automated award application process and built Excel model to support new scoring framework, eliminating scoring subjectivity.

Consult Your Community — Atlanta, GA
Business Analyst – Trees Atlanta Engagement — *Aug. 2025 – Present*

- Evaluated strategic feasibility of new self-sustaining tree nursery initiative through financial modeling and operational analysis.
- Built an Excel pricing model integrating core cost drivers and benchmarking external sourcing to optimize nursery profitability.
- Developed business strategy plan outlining KPIs, staffing models, and sustainability benchmarks for long-term viability.

Life University — Marietta, GA
Basketball Analytics Intern — *Jan. 2024 – May 2024*

- Developed shot quality metric to calculate shot EV, isolating player performance from variance due to shooting performance.
- Achieved a 0.910 Kuder-Richardson 20 coefficient, significantly exceeding the 0.7 standard reliability threshold.
- Drove a 10.7-point increase in team offensive efficiency by incorporating research findings with lineup metric analyses.
- Reduced data entry time by 75% by designing Excel automation tool that calculates player performance statistics.

Projects

Order Entry & Matching Engine | *Algorithm Design, Numerical Analysis, C++*

- Ongoing group project for Millennium Management; set to present final product in Millennium's Miami office in May.
- Engineering robust Pro Rata order allocation algorithm, implementing size-proportional order fills in high-volume environments.
- Building stochastic model to derive fill probability using order book depth, queue position, and simulated volatility.
- Optimizing new day opening price formula, maximizing volume while minimizing price deviation from previous market close.

NCAA Basketball Predictive Model | *Python, Statistical Modeling, Numerical Analysis*

- Engineered Python model to input NCAA season game outcomes to calculate team skill ratings using Massey Method.
- Implemented Gaussian Elimination with partial pivoting algorithm for Least Squares Regression to address numerical stability.
- Gave bracketology talk for ATL Science Festival to discuss predictive modeling and role of probability in tournament structures.

Bayesian Blackjack Engine | *Python, Monte Carlo Simulation*

- Built one-step look-ahead policy utilizing Bayesian-style updating to track deck composition and optimize player strategy.
- Leveraged greedy heuristic to approach game's mathematical win rate limit (40–45%) while minimizing computational load.

Graph Theoretical Pursuit-Evasion Research | *LaTeX, Research Collaboration*

- Collaborated with Graph Theory professor to propose series of conjectures for potential publication.
- Analyzed role of chord number in pursuit-evasion games to characterize winning strategies under structural graph constraints.
- Ultimately disproved initial conjectures by counterexample.

Skills & Awards

Skills: Python, Excel, MATLAB, Java, LaTeX
Awards: Morely Award (2024) | Faculty Honors List (2024, 2025) | Faculty Calculus Award (2024) | Faculty Statistics Award (2024) | National Merit Finalist (2024) | Governor's Honors Program State Nominee: Mathematics (2023)
Interests: Combinatorial Game Theory, Behavioral Economics, Strategy Games, Coaching Youth Sports