Francis Bahk

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Recent graduate pursuing a quantitative role to solve complex real-world problems

EDUCATION

Cornell University   Ithaca, NY
Dual Major in Mathematics and Classics   May 2025
Focused on research, with multiple academic publications

GPA: 3.7 • **SAT:** 1540

Coursework: Differential Games & Optimal Control (Graduate Course) • Optimization • Statistics & Probability • Linear Algebra • Diff Eqs & Dynamical Systems • OOP & Data Structures • Functional Programming • Financial Accounting • Macroeconomics

EXPERIENCE

Winner @ National Quantitative Finance Competition   Sep '24 – Oct '24 | New York, NY
- **3***rd* overall from 50 teams in Cornell Trading Competition (**3***rd* @ Derivatives, **3***rd* @ Jane Street Estimathon)
- Built fair-volatility model for options and managed portfolio risk through delta and vega neutrality; backtested in Python
- Achieved Sharpe ratio of 24.2 and lowest overall maximum drawdown across three orderbooks of SPX options

Teaching Assistant @ College of Engineering   Jan '24 – May '24 | Ithaca, NY
- Undergraduate staff of *ORIE 3310: Optimization II*, course with ~100 students covering optimization and algorithms
- Guided students through stochastic dynamic programming and network flow optimization assignments in weekly office hours

Academic Fellow @ Cornell Mathematics Department   Oct '23 – May '24 | Ithaca, NY
- Selected for competitive $5,000 Cornell Math REU grant after presenting on L-functions through Directed Reading Program

Poker Player   Jan '23 – Dec '24 | Ithaca, NY
- **8***th* from *656* in '24 World Poker Tour Passport Battle, **6***th* from *125* in '24 Susquehanna International Group's NYC Qualifier
- **8***th* from *100* in '24 Annual Cornell Poker Tournament, **5***th* from *100* in '23 Annual Cornell Poker Tournament
- Apply game theory and probability to optimize decision-making and generate profit in high-pressure live and online games

Associate Editor @ Cornell Undergraduate Law Review   Oct '22 – May '23 | Ithaca, NY
- Ensured high publication standards for Cornell's premier law review (*appointed Managing Editor for 2023–24, declined offer*)

RESEARCH

Student Researcher (Optimal Control) @ Cornell Mathematics Department   Oct '24 – Dec '24 | Ithaca, NY
- Developed strategic surveillance model using Stackelberg game theory with direct applications to defense and threat detection
- Studied non-linear partial differential equations with emphasis on anisotropic front dynamics and control-theoretic applications

NSF-REU (Number Theory) @ University of Michigan-Dearborn   May '24 – Jul '24 | Dearborn, MI
- One of 12 students selected nationwide; found new zeros in close variant of Riemann Hypothesis, leading to conference talks
- Used Mathematica to investigate zero distributions in period polynomials over imaginary quadratic fields and complex domains

NSF-REU (Numerical Analysis) @ University of Rochester   May '23 – Aug '23 | Rochester, NY
- Conducted research with Prof. Jannick Rolland on orthogonal polynomial interpolation for modeling freeform optical surfaces

Team Lead (Operations Research) @ Cornell Course Scheduling Team   Feb '23 – May '23 | Ithaca, NY
- Selected as lead under Prof. David Shmoys to develop linear program optimizing university course schedule from large datasets
- Paper accepted into *Cornell Undergraduate Research Symposium* and optimal schedule implemented by Registrar for Spring '23

OTHER

Skills: Programming (Python, Java, OCaml), Math Tools (Mathematica, LaTeX)
Certifications: WSP's Proficiency in Financial Modeling (3-statement models, valuation methods)
Languages: Latin (read, write) • French (read) • Korean (speak)