

# Francis Bahk

feb47@cornell.edu • (585) 287-4025 • <https://www.linkedin.com/in/francisbahk/>

*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 • Optimization • Statistics & Probability • Linear Algebra • Diff Eqs & Dynamical Systems • OOP & Data Structures • Functional Programming • Financial Accounting • Macroeconomics • Microeconomics

## EXPERIENCE

### Winner @ National Quantitative Finance Competition

Sep '24 – Oct '24 | New York, NY

- 3rd overall from 50 teams in Cornell Trading Competition (3rd @ Derivatives, 3rd @ 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

- 8th from 656 in '24 World Poker Tour Passport Battle, 6th from 125 in '24 Susquehanna International Group's NYC Qualifier
- 8th from 100 in '24 Annual Cornell Poker Tournament, 5th 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)