Francis Bahk

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EDUCATION

Cornell University   Ithaca, NY
BA, Mathematics (Operations Research) & Latin double major   *August 2021 – Expected May 2025*
Dean's List, GPA 3.63

Relevant Coursework: Differential Games & Optimal Control (MATH 6230), Statistics & Probability (ECON 3130), Lie Groups & Lie Algebras (MATH 7390), Differential Geometry (MATH 4540), Topology (MATH 4530), Matrix Groups (MATH 4500), Complex Analysis (MATH 4220), Differential Equations & Dynamical Systems (MATH 4200), Abstract Algebra (MATH 3340), Optimization II (ORIE 3310), Optimization I (ORIE 3300), Analysis (MATH 3110), Functional Programming & Data Structures (CS 3110), Linear Algebra (MATH 2210), Object-Oriented Programming (CS 2110), Multivariable Calculus (MATH 1920), Rapid Reading in Latin (LATIN 3220), Roman Poetry (LATIN 3203), Financial Accounting (HADM 2230), Macroeconomics (ECON 1120)

EXPERIENCE

University of Michigan-Dearborn, Research Experience for Undergraduates (NSF-REU)   *May 2024 – Jul 2024* | Dearborn, MI
- Extended Eichler-Shimura isomorphism to Bianchi group case with nationally recognized undergraduate number theory program
- Determined location and distribution of nontrivial zeros of period polynomials and presented at statewide research conference

Cornell University, Operations Research Advanced Mathematics Team   *Aug 2023 – Dec 2023* | Ithaca, NY
- Conducted literature review on polynomial Hirsch conjecture and Barnette's conjecture under Professor David Goldberg
- Learned semester's worth of undergraduate graph theory and applications of conjectures to related problems like P versus NP

University of Rochester, Research Experience for Undergraduates (NSF-REU)   *May 2023 – Aug 2023* | Rochester, NY
- Studied convergence of orthogonal polynomials in data interpolation in freeform optics with Professor Jannick Rolland
- Wrote proprietary code that performs least-squares fitting of mid-spatial frequency data to Zernike polynomials

Cornell University, Operations Research Scheduling Team   *Jan 2023 – Jun 2023* | Ithaca, NY
- Led team of 13 students under Professor David Shmoys to formulate linear programs that minimize enrollment conflicts
- Used real enrollment data to create schedules that Engineering Registrar utilized and presented at Cornell research symposium

LEADERSHIP AND CAMPUS INVOLVEMENT

Cornell Poker Association, Member   *Jan 2023 – Present* | Ithaca, NY
- Placed 8th/100 and 5th/100 in 2024 and 2023 Cornell SIG WSOP Tournaments with $1,000 and $3,000 prize pools respectively
- Placed 6th/125 in highly competitive international 2024 SIG online qualifier for in-person tournament with $5,000 prize pool

ORIE 3310 (Optimization II), Teaching Assistant   *Jan 2024 - May 2024* | Ithaca, NY
- Held weekly office hours, proctored exams, and graded assignments and labs for upper-level course required for ORIE majors

Cornell Directed Reading Program, Participant   *Aug 2023 – May 2024* | Ithaca, NY
- Read chapters 1-3 in *Automorphic Forms* by Deitmar (covering Modular Forms, L-functions, Zeta function, Hecke Operators)
- Met weekly with Professor Peter Uttenthal and attended several number theory seminars led by professional researchers

Cornell Undergraduate Law Review, Managing Editor   *Oct 2022 – Aug 2023* | Ithaca, NY
- Supervised publication quality and mentorship strategy for Cornell's premier undergraduate law review journal
- Attentively reviewed thirty article drafts for ten staff writers and gave LexisNexis training talk at start of each semester

Cornell Design & Tech Initiative, Product Manager   *Sep 2022 – Aug 2023* | Ithaca, NY
- Found deployment solution for cuapts.org, a website with hundreds of users where students can browse for off-campus housing
- Led subteam meetings and delegated tasks to be completed in two-week sprints for seven developers and two designers

OTHER

Miscellaneous Software: Java, Python (pandas, NumPy, Sage), OCaml, Mathematica, Magma, Jupyter Notebook (Gurobi)
Languages: Latin, French, Korean