DAVID FANG

202 S. See Gwun Ave. Mt. Prospect, IL 60056
+1 (847) 624-2039 df2713@columbia.edu

Education

University of Illinois at Chicago, *Chicago, IL, GPA: 4.00* Exp. 2025
M.S. in Statistics, Board of Trustees Tuition and Fee Scholarship

Wolfson College, University of Cambridge, *Cambridge, United Kingdom* June 2023
M.A.St in Pure Mathematics, with Honors and Distinction in Thesis

Columbia College, Columbia University, *New York, NY, GPA: 3.72* May 2022
B.A. in Mathematics, Concentration in Art History with Departmental Honors in Mathematics

Skills

- **Programming and Computer Science** | Python, Java, MATLAB, R, Excel, SAS, PyTorch, GraphPad Prism, SQL, Amazon Redshift, AWS, Shiny, Tableau, C, Pandas, NumPy, Mathematica, Julia, LaTeX
- **Languages |** Proficient in Mandarin, Elementary skills in Japanese and Spanish
- **Mathematics |** Mathematical Proof Writing and Research, Mathematics and Theoretic Foundations of Machine Learning

Experience

Reading Hospital, *Remote Data Analyst,* *West Reading, PA* Oct. 2024 - Present
- Collaborating with Professor Ping-Shou Zhong of UIC and Dr. Adrian Ong of Reading Hospital to analyze trauma center data in R/SAS
- Working to determine whether rib fracture location in geriatric patients adds prognostic value to current rib fracture metrics, specifically RibScore

University of Illinois Chicago, *Research Assistant,* *Chicago, IL* June 2024 - Present
- Researching optimal subdata selection algorithms for Mixture-of-Experts (MoE) machine learning models under Professor Min Yang
- Proved 3 Theorems on the asymptotic efficiency of the IBOSS selection algorithm for Clusterwise Linear Regression Models with general gate function
- Currently working on proving results for when clusters are classification models, specifically logistic regression

Northwestern University, *Research Assistant,* *Evanston, IL* Aug. 2023 - Present
- Applied mathematical models to PDX tumor growth data in order to predict oncological metrics such as mitosis rate and apoptosis rate under Professors Wenan Qiang and Emma Turian
- Built programs and web applications in Python, R, and Shiny to automate data cleanup and analysis from microplate arrays
- Assisting in analyzing drug response data to screen the efficacy of various inorganic cancer drugs.
- Prepared data and visuals for publication using MatPlotLib and Prism.

Blue Bottle Coffee, *Barista,* *Rockefeller Center, New York, NY* May 2022 - Aug. 2022
- Completed the Bloom, a comprehensive training course in specialty coffee, ranging from espresso, pour-over technique, milk steaming, latte art, as well as coffee processing and roasting
- Worked in a customer service environment at the heart of a New York City tourist hotspot serving coffee, espresso, teas, and pastries

Wolpert Lab at Zuckerman Mind Brain Behavior Institute, *Research Assistant*, *New York, NY* June 2019 - Aug. 2019
- Spearheaded my own project investigating the links between how the brain perceives ambiguous visual information and motor adaptation
- Presented recent breakthroughs in computational neuroscience to members of the lab as part of Journal Club
- Analyzed sensorimotor learning time-series data using MATLAB and Psychtoolbox

Extracurricular Activities, Clubs and Programs

Columbia University Louis Armstrong Jazz Performance Program, *Saxophonist*, *New York, NY* Sept. 2018 - May 2020
- Auditioned and was selected for a top combo; performing at venues around NYC and being mentored by 5-time GRAMMY winner Don Sickler
- Lead and perform in educational workshops in jazz music, history, and practice for HUMA 1123 Masterpieces of Western Music classes

Coursework

- **Statistics and Probability** | Probability Theory, Applied Statistical Methods, Statistical Theory
- **Computer Science |** Data Structures and Algorithms, Discrete Math, Java Programming
- **Mathematics |** Real Analysis, Measure Theory, Group Theory, Galois Theory, Knot Theory, Algebraic Topology, Algebraic Geometry, Lie Algebras, Commutative Rings, Differential Geometry