Colin Baker | 171 Hobart Rd, Newton, MA, 02459 | colin_baker@brown.edu | (617) 800-7487

EDUCATION

Brown University | Sc.B. in Computer Science | Providence, RI | 2021 - 2025 (Expected) | 4.0 GPA

- *Computer Science Courses*: Computer Systems, Computational Molecular Biology, Theory of Computation, Software Engineering, Artificial Intelligence, Design and Analysis of Algorithms, Introduction to Cryptography, Algorithmic Foundations of Computational Biology, Deep Learning, Robust Algorithms for Machine Learning*
- *Mathematics Courses*: Intermediate Calculus for Physics/Engineering, Honors Statistical Inference I, Linear Algebra, Introduction to Discrete Structures and Probability, Mathematical Econometrics I
- *Chemistry Courses:* Organic Chemistry I, Reaction Kinetics and Reactor Design*, Atomistic Reaction Engineering*
- *Awards:* 2025 Brown Rhodes Scholarship nominee, Undergraduate Teaching and Research Award (UTRA) recipient

Milton Academy | Milton, Massachusetts | 2017 – 2021 | 4.2 Unweighted GPA

- Only student in the class of 2021 inducted early to the Milton Academy Chapter of the *Cum Laude* Society

EXPERIENCE

Undergraduate Research | Singh Lab; Peterson Lab; Istrail Lab | Summer 2023 – Present

- *Singh Lab:* Presented work on a paper in progress at RECOMB 2024 about an open-source method for Augmented Gromov-Wasserstein optimal transport (AGW), an unsupervised machine learning algorithm that aligns unpaired datasets with a shared underlying manifold structure
- *Peterson Lab:* Working on moving simulation of electrochemical interfaces with density functional theory into Fourier space, as well as learning advanced thermodynamics and statistical mechanics outside of the classroom
- *Istrail Lab:* Working on a thesis examining the role of hydrophobicity in the newest protein structure determination models

Undergraduate Teaching | Brown University Department of Computer Science | Fall 2023 – Present

- Undergraduate TA for Computational Molecular Biology (Fall 2023) and Algorithmic Foundations of Computational Biology (Spring 2024); Head TA for Introduction to Cryptography and Computer Security (Fall 2024) and Advanced Algorithms in Computational Biology and Medical Bioinformatics (Spring 2025)
- Helped design new homework and exam questions to test student understanding, as well as held weekly office hours
- Developed two new projects; one on learning genomic patterns from trained HMMs and one on HP model protein folding

Analyst Intern | Charles River Associates | Summer 2024

- Developed causal models and handled large datasets in python for healthcare merger analysis
- Used folium and tkinter to create a mapping application to streamline the automation of visualizing geographic data for the purpose of analyzing regional anticompetitive concerns in merger and litigation cases

Computational Biology Intern | Kojin Therapeutics | Summer 2022

- Used machine learning and data science techniques in order to predict cancer cell dependencies on a real-world dataset
- Researched important biomarkers of ferroptosis sensitivity to produce informed models

EXTRACURRICULAR ACTIVITIES

Brown Men's Varsity Crew | 2021 - 2025 (Expected)

- Walked on in the fall of freshman year
- Raced in the Club 8+ at the Head of the Charles in 2022, placed 7th
- Raced in the Varsity 4+ at the Intercollegiate Rowing Association Championships in 2023, placed 11th

Skills: Proficient in Java, Python, C, MatLab, TypeScript; Basic Spanish

Libraries and Frameworks: Numpy, Pandas, Scikit-learn, Scanpy, Matplotlib, Pytorch, Tensorflow; Spark (Java)

References: Ritambhara Singh, Assistant Professor of Computer Science, Sorin Istrail, Julie Nguyen Brown Professor of Computational and Mathematical Sciences, and Andrew Peterson, Associate Professor of Engineering

* expected Fall 2024