

J. BLAKE BULLWINKEL

jbullwinkel@fas.harvard.edu | blakebullwinkel.com | Cambridge, MA | 917-328-1377

EDUCATION

| | |
|---|--------------------|
| Harvard University , Cambridge, MA | Expected June 2022 |
| M.S. in Data Science. GPA 3.93/4.0. Advisor: Pavlos Protopapas | |
| Williams College , Williamstown, MA | June 2020 |
| B.A. in Mathematics and Chinese. GPA 3.83/4.0 (<i>cum laude</i>) | |
| University of Oxford , Oxford, UK | June 2019 |
| Attended as a visiting student as part of the selective, year-long Williams-Exeter Program at Oxford. | |

PROFESSIONAL EXPERIENCE

| | |
|---|-------------|
| PepsiCo R&D , <i>Data Science & Analytics Intern</i> | Summer 2021 |
| <ul style="list-style-type: none">• Developed Python package for anomaly detection of water usage time series using statistical and ML methods.• Trained time series models (ARIMA, Facebook Prophet, LSTM) to forecast water efficiency of future weeks, lowering the mean validation RMSE across 17 beverage plants by 43% in comparison to a moving average baseline.• Implemented a real-time warning system using stochastic models and automated actionable insights in Power BI. | |
| Marble , <i>Co-Founder</i> | Summer 2020 |
| <ul style="list-style-type: none">• Leading the development of a mobile app that provides carbon footprint estimates for 200,000+ grocery products.• Team of three accepted into the 2021 Harvard i-lab Spring and Summer Venture Programs. | |
| Institute for Human and Machine Cognition , <i>Data Science Intern</i> | Jan 2020 |
| <ul style="list-style-type: none">• Used Python and PostgreSQL for cleaning, visualization, and analysis of flight simulation data. | |
| Zola Electric , <i>Digital Platforms Intern</i> | Summer 2019 |
| <ul style="list-style-type: none">• Queried time series data using MySQL to identify transaction delays in solar electricity startup's software platform. | |

SELECTED PROJECTS

| | |
|--|---------------------|
| GANs for Partial and Stochastic Differential Equations , Cambridge, MA | Feb 2021 to Present |
| <ul style="list-style-type: none">• Master's thesis research focused on improving the training stability of DEQGAN, a novel generative adversarial network for solving differential equations, and extending results to partial and stochastic equations. | |
| Classifying the Sounds of NYC , Cambridge, MA | April 2021 |
| <ul style="list-style-type: none">• Trained and tuned ML models to classify audio clips recorded in NYC into ten classes with 73% validation accuracy.• Performed dimensionality reduction on amplitude and mel spectrogram time series data using PCA. | |
| DreamDiff Python Package , Cambridge, MA | Dec 2020 |
| <ul style="list-style-type: none">• Led a team of three to develop a Python package that implements forward-mode automatic differentiation.• Added extensions for root-finding, optimization by gradient descent, quadratic splines, and visualization methods. | |

LEADERSHIP EXPERIENCE

| | |
|--|-----------------------|
| Exeter College Boat Club , Oxford, UK, <i>Men's Captain</i> | Nov 2018 to June 2019 |
| <ul style="list-style-type: none">• Elected to lead the Exeter College Boat Club as the men's rowing captain during year abroad at Oxford. | |
| Williams College , Williamstown, MA, <i>Chinese Teaching Assistant</i> | Sept 2017 to May 2020 |
| <ul style="list-style-type: none">• Selected by Chinese department to act as a salaried assistant to professors through 1:1 tutoring sessions. | |

HONORS AND AWARDS

| | |
|---|------|
| IACS Student Scholarship to support data science thesis research (\$20,000 award) | 2021 |
| PepsiCo Data Science Challenge grand prize winner among 250+ contest participants | 2020 |
| Goldberg Prize in Mathematics for the best mathematics colloquium (department-wide senior prize) | 2020 |
| Linen Prize in Chinese for achieving distinction in Chinese (department-wide senior prize) | 2020 |
| Carolyn Korthals Altes Scholarship for academics and potential to contribute to society | 2019 |
| UWCSEA Class of '16 Graduation Student Speaker elected by peers to deliver student address | 2016 |

SKILLS AND INTERESTS

| | |
|------------------|---|
| Technical | Python (NumPy, pandas, scikit-learn, TensorFlow, Keras, PyTorch), R, SQL, React, HTML/CSS |
| Language | Working proficiency in Chinese (Mandarin) |
| Interests | Rowing, Photography, Writing (Medium blog), Rubik's Cube Solving (WCA profile) |