Blake Bullwinkel

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Education

Harvard University — Cambridge, MA
M.S. in Data Science. GPA 3.95/4.0. — *May 2022*

Williams College — Williamstown, MA
B.A. in Mathematics, Chinese. GPA 3.83/4.0 (*cum laude*). — *June 2020*

University of Oxford — Oxford, UK
Attended as part of the selective, year-long Williams-Exeter Program at Oxford (WEPO). — *June 2019*

Professional Experience

Microsoft — Redmond, WA
Data Scientist — *Aug 2022–Present*
• Working on Azure in the Cloud + AI Group.

Harvard University — Cambridge, MA
Teaching Fellow — *Feb–May 2022*
• Selected to assist professors in teaching of CS 109b: Advanced Topics in Data Science, a course focused on non-linear statistical methods and deep learning models, including CNNs, RNNs, LSTMs, autoencoders, and GANs.

PepsiCo R&D — Valhalla, NY
Data Science & Analytics Intern — *May–Aug 2021*
• Developed Python package for anomaly detection of water usage time series using statistical and ML methods.
• Trained time series models (ARIMA, LSTM, FB Prophet) to forecast future water efficiency of 17 beverage plants.
• Developed an automated data pipeline with actionable insights in Power BI that has been adopted nationwide.

Marble — Remote
Co-Founder — *June 2020–Present*
• Leading the development of a mobile app that provides carbon footprint estimates for 150,000+ grocery products.
• Team of six accepted into the 2021 Harvard i-lab Venture Program for three consecutive semesters (website).

Selected Projects

Generative Adversarial Network Methods for Solving Differential Equations — *Feb 2021–May 2022*
• Researched and developed methods to improve the training stability of DEQGAN, a generative adversarial network for solving differential equations, and developed novel transfer learning algorithms (master's thesis).
• Paper accepted to the AI for Science workshop at ICML 2022 (OpenReview).

Harvard IQSS-Microsoft Collaboration on Differential Privacy — *Sept 2021–May 2022*
• Worked with Microsoft data scientists to research the fairness impact of differentially private synthetic data in ML.
• Paper accepted to the Theory and Practice of Differential Privacy (TPDP) workshop at ICML 2022 (arXiv).

DreamDiff Python Package — *Dec 2020*
• Led a team of three to develop a Python package that implements forward-mode automatic differentiation (PyPI).
• Added extensions for root-finding, gradient descent, quadratic splines, and visualization methods.

Honors and Awards

Certificate of Distinction in Teaching based on student ratings (mean 4.67/5.0 for CS109b) — *2022*
IACS Student Scholarship to support data science thesis research ($20,000 award) — *2021*
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*

Skills and Interests

Programming	Python (NumPy, pandas, sklearn, statsmodels, TensorFlow, PyTorch), R, SQL, HTML/CSS
Methods	Statistical machine learning, time-series analysis, stochastic methods, deep learning
Language	Working proficiency in written and spoken Chinese (Mandarin)
Interests	Rowing, photography, writing (Medium blog), Rubik's cube solving (WCA profile)