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*
• Building ML models and pipelines to optimize host OS updates in Azure (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.

Research Experience

Transfer Learning with Physics-Informed Neural Networks — *Feb 2022–Dec 2022*
• Developed a multi-head architecture and transfer learning procedure for efficient simulation of branched flows.
• Paper accepted to the Machine Learning and the Physical Sciences workshop at NeurIPS 2022 (arXiv).

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 (GitHub).
• Paper accepted to the AI for Science workshop at ICML 2022 (arXiv).

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).

Honors and Awards

Certificate of Distinction in Teaching for CS109b based on student ratings (mean 4.67/5.0) — *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, TensorFlow, PyTorch), R, SQL, HTML/CSS
Tools/Platforms — Conda, Jupyter, Git, Docker, Kubernetes, Azure, AWS
Language — Working proficiency in written and spoken Chinese (Mandarin)
Interests — Rowing, photography, writing (Medium blog), Rubik's cube solving (WCA profile)