Raphael Walker

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Education

Université de Paris-Saclay *Orsay, France* — May 2023
Master of Science, Mathematics of Artificial Intelligence

Bard College *Annandale-On-Hudson, New York* — May 2021
Bachelor of Arts, Mathematics Major — GPA 4.0

Bard College at Simon's Rock *Great Barrington, Massachusetts* — May 2019
Associate of Arts — GPA 3.9
Mathematics and Computer Science Tutor

Work Experience

Flim — October 2023—
Machine Learning Research Scientist

- Assisted with a collaboration between visual artists Gérard Garouste and Neil Beloufa, using machine learning models trained on their artworks.
- Built a generative AI system for "combining" pairs of images. Applied cutting-edge fine-tuning objectives to create and insert custom layers into foundation models.
- Built a pipeline to extract the most aesthetically pleasing images from a video. Trained a custom preference model on a large-scale internal dataset, and performed intensive optimization to enable efficient CPU inference.

Invisible College — 2021—2022
Full Stack Developer

- PeeryView.org
- Prototyped and built an online tool implementing decentralized and subjective peer review, and archival and discussion of web links.
- Collaborated with the PeeryView design team to determine the tooling needs of the scientific community.

Bard Summer Research Intensive — Summers 2020, 2021
Research Assistant, Mathematics

- Investigated the size of maximal generalized caps in finite affine spaces.
- Introduced other students in the research group to the material and supported their exploration of related problems.

Invisible College — Summers 2019, 2020
Research Assistant

- Designed and developed a set of decentralized synchronization protocols and algorithms.
- Co-authored IETF draft for universal synchronization protocol.
- Created Javascript and NodeJS tools to analyze and debug synchronization algorithms, including a universal protocol translation demo and a peer-to-peer sync visualization.
- Contributed to client and server code for the BraidJS library.

Speakeasy Digital Media   September 2018—December 2018

Web Developer

– Created and modified WordPress PHP templates for company blogs.
– Improved page load times by up to ten times by optimization on both front-end page loading
  and back-end content generation.

Storefront Political   May 2018—August 2018

Data Science Intern

– Analyzed pre-electoral polls, including weighting, cross-tabulating, raking, and cleaning.
– Created R and Python scripts to automate common tasks such as matching ZIP codes to voting
  districts and visualizing survey results.
– Designed and implemented a webapp for interactive visualization of survey results.
– Managed large PostgreSQL databases containing voter information.