

James Bowden

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EDUCATION

California Institute of Technology **GPA 4.1/4**
B.S. Computer Science, Data Science Minor **Grad: 2023**

EXPERIENCE

Software Engineering Intern, Uber | Jun. – Sept. 2021

- Designed and analyzed ML models to increase driver offer acceptance rates and overall trip completion rates
- Pioneered geo-time embedding to create country-wide model and do cold-start prediction via transfer learning
- Improved trip completion model via conditional prediction
- Integrated new internal ML platform for increased modeling and training flexibility

Machine Learning Researcher | Jun. 2020 – Present

Yisong Yue Group, Caltech

- Integrated Deep Kernel Learning (DKL) with BayesOpt (BO) to enhance model fit and find global optima faster
- Improved performance and runtime via Thompson sampling and Monte Carlo dropout
- Cut regret by over 50% compared to best GP models
- Develop multi-fidelity DK-BO for real applications like COVID protein engineering and nanophotonics filter design

Head Teaching Assistant, Caltech | Sept. 2020 – Present

- Serving as TA for:
 - CS 156a: Machine Learning Systems [Fall 2021]
 - CS 24: Computing Systems, C [Fall 2021]
 - CS 3: Software Design, C [Spring 2021]
 - CS 2: Data Structures/Algorithms, Java [Winter 2021, 2022]
 - CS 1: Intro Programming, Python [Fall 2020]
- Hold office hours, give code reviews, lead lab section, grade code, instill good development practices, write lab
- Head TA for CS 2 [Winter 2022]

Bioinformatics Researcher | Dec. 2019 – Jan. 2021

Kaihang Wang Lab, Caltech

- Led team of 3 senior students to create automated data pipeline for reconstructing ancestral genomes
- Wrote Python tools to inform and assist wet bench projects

Software Developer, Caltech | Mar. – Jun. 2020

- Created escape game in C with team of 2 other students
- Implemented A* pathfinding, physics engine, vision, map
- Significantly reduced lag via dynamic programming

SKILLS

Languages

Python, C, Java, JavaScript, SQL, MATLAB, HTML, OCaml

Tools

PyTorch, Keras, TF, sklearn, pandas, NumPy, Hive

Techniques

Deep Learning, BayesOpt, Regression, Transfer Learning

COURSEWORK

- ML & Data Mining
- Machine Learning Systems
- Advanced Topics in ML
- Statistical Inference
- Bayesian Statistics
- Probability Models
- Markov Chains, Discrete Stochastic Processes
- Applied Linear Algebra
- Data Structures/Algorithms
- Software Design
- Computing Systems

AWARDS

Thermo-Fisher Sch., 2019

For medical research (1 of 6)

Teaching Mode, 2018

Best research presentation in cohort of 30

Eagle Scout, 2018

ACTIVITIES

Treasurer, Caltech Student Investment Fund

\$1M AUM, STEM sector focus

Ambassador, Caltech SURF

Advise research fellows

Fleming House Social Chair

Caltech Cannon Master

Caltech Water Polo Team