Benjamin Yi

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Education

University of California, Berkeley Expected May 2026

BA in Computer Science and Data Science, Emphasis in Applied Mathematics and Modeling *GPA: 3.87*

- **Relevant Coursework:** Interpretation of Computer Programs, Data Structures and Algorithms, Computer Architecture and Machine Structures, Abstract Linear Algebra, Foundation of Data Science, Discrete Mathematics
- **Current Coursework:** Real Analysis, Introduction to AI, Principles of Data Science

Skills

Languages: Java, Python, C, JavaScript, HTML/CSS, R, SQL, Scheme, RISC-V
Technical Skills: Pandas, NumPy, PyTorch, Scikit-Learn, Flask, MySQL, React.js, Matplotlib, Seaborn
Developer Tools: AWS (RDS, S3, DynamoDB), Git, VS Code, IntelliJ, Eclipse, Jupyter, CoLab

Experience

Undergraduate Researcher October 2024 – Present

UCSF Weill Institute for Neurosciences | Chen Labs *San Francisco, California*

- Developing machine learning models to analyze mouse phenotypes during electrical shocks, leveraging DeepLabCut for pose estimation and Keypoint-MoSeq for behavioral sequencing, aiming to improve epilepsy drug testing.
- Developed data collection system for mice EEG data collection, utilizing a network of Raspberry Pi computers.

Software Engineering Intern August 2024 – Present

Gravidy Platforms Inc. | Back-end Team *Berkeley, California*

- Collaborating on the design and implementation of a report system that utilizes metrics like trust score and creator engagement using Flask and DynamoDB, featuring real-time data analysis capabilities to flag suspicious activity.
- Developed algorithms to assess user behavior and calculate personal user metrics, preventing unfair banning of comments and videos while creating a safe environment and allowing efficient access to the DynamoDB database.

Research Intern January 2024 – Present

California Partners for Advanced Transportation (PATH) | ADS project *Berkeley, California*

- Collaborated with Nissan and May Mobility to analyze testing data to ensure compliance with industry standards.
- Developed a testing tool for autonomous vehicle data using Flask, MySQL, RDS, and Leaflet.js, allowing team members to validate calculations by visualizing ego vehicle's locations, nearby obstacles, and different metrics.
- Processed interview transcripts into structured, analyzable data to find opinions of AV's from blind populations.
- Analyzed real-time vehicle positioning data using GeoPandas to assess spacing and proximity to surroundings.

Research Assistant January 2024 – May 2024

UC Berkeley Haas School of Business | Under Dr. Biwen Zhang *Berkeley, California*

- Cleaned and processed company market data and financial statements using FuzzyWuzzy word matching algorithms to organize information and analyze trends in research and development investments from 1993 to 2023.

Projects

Dungeon Game | *Java*

- Developed a 2D world procedural generation engine in Java, using pseudorandomized seeds for room generation techniques, replay functionality, lighting control, avatar movement, and saving and loading functionality.
- Implemented customized Prim's algorithm for MST pathfinding hallways, ensuring coherent dungeon layouts.

Convolve | *C*

- Designed an optimized 2D convolution solver for video processing and implemented parallelization techniques.
- Benchmarked program performance against naive solutions, achieving a program that runs 8.06x times faster.
- Handled concurrency issues through strategic use of SIMD instructions, OpenMP directives, and Open MPI.

Sheet Music Generator(in progress) | *Python, Pandas, Numpy, Pytorch*

- Researching signal processing to better understand definitions of pitch and how music is processed by computers.
- Developing machine learning models to predict and write sheet music including, pitch, dynamics and tempo.