

Kevin Miao

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SKILLS

Technologies: **Python** (Django, Pandas, Numpy, Spark, SciKit-Learn, SciKit-Image, PyTorch, seaborn, matplotlib), **Java**, **C** (OpenMP), **SQL**, **HTML/CSS/JS**, **Swift**, **Git**, **RegEx**, **Tableau**, **Vim**

EDUCATION

University of California, Berkeley

Computer Science B.A.

GPA: 3.838

Honors/Awards: Dean's Honors List (Fall '17, '18), Honors to Date (Present), Lightweight Coxswain of the Year (2019)

Berkeley, CA

Expected May 2021

RESEARCH EXPERIENCE

UC Berkeley, Electrical Engineering and Computer Science

Berkeley, CA

Undergraduate Deep Learning Researcher at the RISELab under Dr. J. Gonzalez

Sep 2020 - Present

- Developing deep learning architecture for the classification and segmentation of medical images, echograms and sonograms through the employment of concept bottleneck models
- Integrating segmentation and classification CNNs to create lingual multimodal justification pipeline for deep learning backed diagnoses to improve explainability of medical deep learning applications

UCSF, Bakar Computational Health Sciences Institute

San Francisco, CA

Undergraduate Machine Learning Researcher under Dr. J. Hong

Jan 2020 - Present

- Performing data engineering on electronic health records extracted from hospital cloud systems for further analysis
- Designing machine learning models to identify high risk cancer patients receiving outpatient chemotherapy to increase life quality and decrease emergency department loads through Random Forest, LASSO and Boosting algorithms (**ROCAUC 78%**)
- Assessing performance and risks of the prediction model implemented at the UCSF clinic in funded trial
- Authoring paper on cancer treatment risk model in addition to holding journal review sessions and code reviews for other lab members

UC Berkeley, Department of Integrative Biology

Berkeley, CA

Undergraduate Bioinformatics Researcher under Dr. N.K. Whiteman

Jun 2018 – Jan 2020

- Devised experiments to study the response of fruitflies to volatile mustard oils through neural in-vivo voltage and analysis and behavioral tests
- Performed quantitative genome analysis of divergent clades to deconstruct common ancestral relationship
- Directed dimensionality reduction on the collected data concerning the results from experiments conducted to study the mechanism of the olfactory system in *Scaptomyza Flava*
- Advised postdoctoral mentor on paper setup, review, writing and provided final figures for in paper

TEACHING EXPERIENCE

UC Berkeley, Division of Computing, Data Science, and Society

Berkeley, CA

Undergraduate Student Instructor "Foundations of Data Science"

Jan 2019 - Present

- Institutionalized new interdepartmental student instructor body amidst global pandemic to ensure visibility of problems experienced by underrepresented students and effectively advise the department on decisions concerning online education
- Teaching weekly labs and discussion sections with 30 student, yielding high satisfactory evaluation scores (**85%**)
- Preparing and proofreading interactive programming assignments
- Completing grading of weekly assignments and semesterly examinations
- Holding weekly 2-hour review and office hour sessions and providing improvements to technical infrastructure of the course

UC Berkeley, Electrical Engineering and Computer Science

Berkeley, CA

Reader/Group Tutor “Data Structures and Algorithms”*Jun – Aug 2020*

- Synthesized interactive open-access learning materials and videos covering data structures, algorithms and time complexities
- Debugged and assuring quality of Java programming assignments
- Guided small groups of students through exam redemption sections for **8 hours** a week
- Supported instructors with the distribution and outlining of biweekly quizzes, supervision of guerilla sections and setup of debugging office hours

UC Berkeley, Integrative Biology

Berkeley, CA

Undergraduate Student Instructor “General Biology”*Aug – Dec 2018*

- Oversaw introductory biology wet labs and organizing demonstrations of these labs, teaching common practice/procedures in biology
- Assisted students with understanding computer simulations, worksheet questions and class content
- Created presentations and course material in collaboration with course directors and graduate students

Longfellow Middle School

Berkeley, CA

Middle School Mathematics Student Instructor*Aug – Dec 2017*

- Participated in the student teacher program at UC Berkeley (CalTeach) and prepared weekly inquiry-based lesson plans in accordance with common core requirements
- Tutored a group of 25 middle school students from socially or economically disadvantaged children through reward-oriented programming which put them back on par with their peers
- Created guide on teaching students from underrepresented, low-income, first-generation families centering around feedback-based education

PROFESSIONAL EXPERIENCE**monday.com**

New York City, NY

Machine Learning Consultant*Aug 2020 - Present*

- Managing team of 6 undergraduate students on the development of forecasting and regression models to automate strategical marketing decision to increase the retainment of education users on the Monday.com platform
- Creating cloud architecture for large scale deployment of the prediction model for marketing yields based on 100+ predictors using gradient boosting, linear regression and tree regressors
- Researching key findings through exploratory data analysis, feature engineering, data visualization and dimensionality reduction algorithms (GDA, PCA, Correlation) which led to change of marketing strategies leading to an increase of education user retention by 10%

PayPal

San Jose, CA

Data Analysis Consultant*Sep – Dec 2019*

- Advised and implemented structural changes on data-driven projects developed by PayPal Innovation Lab leading to an increase of **40%** in employee engagement and innovation
- Conducted NLP and regression analysis to assess performance of employee reward system and to develop better feature sets to streamline data analysis. Created dashboard to automate data inference for user

LEADERSHIP EXPERIENCE AND EXTRACURRICULAR ACTIVITIES**Data Science Society at UC Berkeley**

Berkeley, CA

Project Manager & Member of Executive Board*Aug 2020 – Present*

- Selecting and mentoring a diverse group of undergraduates from different majors and backgrounds on data science, software engineering and machine learning research projects
- Advocating for new community-focused agenda, leading to the implementation of diversity quotas closing the gender gap between men and women in the historically predominantly male club and the start of a brand new ‘Data Science for Social Good’ subdivision

California Lightweight Rowing

Berkeley, CA

Vice-President/Varsity-Athlete*Aug 2017– Aug 2020*

- Practiced 3 hours every day to prepare for state and national level collegiate regattas competing against student athletes in fully funded athletic programs

- Optimized travel logistics for a team of 65+ athletes as a result of smart cost cutting and collaboration with university executives to invest in smart transportation, leading into a 35% decrease in usage of financial resources
- Rescued historic 40 year old rowing team through wide-reaching fundraising efforts and persistent negotiations with involved parties to resolve high attrition rate, inherited financial issues and adversarial legal challenges

Democrats 66, US Division

New York, NY

San Francisco Bay Area Ambassador

Jun 2018 – Present

- Organizing biannual meetings for expat members of Democrats 66 living in the San Francisco Bay Area to discuss the national party's vision and goals
- Advising on and advocating for legislation proposals on protecting citizen's freedom and privacy in the context of emerging data surveillance technologies

PUBLICATIONS

Matsunaga, T., Reisenman, C. E., Goldman-Huertas, B., Brand, P., Miao, K., Suzuki, H., ... & Whiteman, N. K. (2019). Olfactory receptors tuned to volatile mustard oils in drosophilid flies. *BioRxiv*. <https://doi.org/10.1101/2019.12.27.889774>.

Non-Peer Reviewed

Miao, K., Yousefi, S., Dale, J., Cinar, P., Hong, J., (2021) Using Machine Learning for the Prediction of Post-Outpatient Cancer Treatment Related Emergency Admissions and Hospitalizations.

In Progress

FEATURED PROJECTS

FACIAL DETECTION USING CNNs

Oct 2020

Modified ResNet Maxpool operations to counteract the negative effects aliasing through convolution of gaussian kernels on facial keypoints classification improving performance over 20%, implementing "*Delving Deeper into Anti-Aliasing in ConvNets*" by Zou, X. et al.

"PROJECT VEJOVIS: COVID-19 FATALITIES FORECASTING"

Mar – May 2020

Constructed an interactive COVID-19 fatality and deaths prediction dashboard in California using time-forecasting algorithms.

USING CNNs TO PREDICT ALZHEIMER'S

Jan - May 2019

Using CNN to predict advancement of Alzheimer from MRI data.

LANGUAGES

Dutch

Chinese – Wenzhounese

Chinese – Mandarin

English

Latin

Ancient Greek

French

German

