Patrick Yu

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EDUCATION

University of California, Berkeley Aug 2017 – May 2021

Computer Science Major Technical GPA: 3.5

- Relevant Coursework: Data Structures, Designing Information Devices and Systems, Efficient Algorithms and Interactable Problems, Artificial Intelligence, Optimization Models and Applications

PROJECTS

Machine Learning Design December 2018

- Built a multi-layer neural network in Python to solve a variety of machine learning problems, including linear and nonlinear regression, handwritten digit classification, and language identification.
- Neural network uses batch gradient descent to classify handwritten digits from the MNIST dataset, and a Recurrent Neural Network is used to identify the language of a given word.

NP-Hard Algorithm Design November 2018

- Designed an efficient algorithm for the NP-Hard problem of producing a partition of an undirected graph that maximizes the percentages of valid edges given a list of invalid edges and constraints.
- Final design used linear programming to assign constraints to satisfy the validity of edges and used heuristics to maximize the percentages of valid edges in each partition.

Bear Maps April 2018

- Created a web mapping application using Java that allows users to search for locations and shortest paths around Berkeley, including the option to zoom onto different map locations by reselecting pixels.
- Uses Map Rastering to convert the information on a map to a pixel-by-pixel image and uses shortest path algorithms, such as A* and Dijkstra's, to find the optimal path between two locations.

EXPERIENCE

Code Coach, *The Coder School Berkeley* October 2018 - Present

- Teach students from ages 7-18 the fundamentals of coding, including conditional statements, loops, and variables, and explore the various applications of programming.
- Work with students to explore the fundamentals of Python, create websites with HTML/CSS and JavaScript, learn the basics of Java, and apply all ideas towards problem solving and algorithm design.

Academic Intern, *UC Berkeley EECS* Jan 2018 – May 2018

- Helped students during labs and office hours by assessing the students' understanding of material with weekly lab check-offs and guiding students through difficult problems.
- Assisted the TA with preparing material to build students' knowledge of the curriculum, covering topics such as higher-order functions, recursion, trees, and memory/runtime.

SKILLS AND INTERESTS

- **Skills:** Python, Java, C, SQL, JavaScript, Go, HTML/CSS, LaTeX, Microsoft Office
- **Languages:** Advanced Conversational and Written Mandarin Chinese

EXTRACURRICULARS

Intramural Volleyball September 2018 - Present

- Team captain of an intramural volleyball team, requiring the organization of practices and formations.

AFX Dance Jan 2018 – Present

- Joined the AFX Dance club, which requires multiple practices a week and several performances.
- Each team designs a unique set that blends the urban dance style with lyrical choreography.