# LULU YU

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## *EDUCATION*

University of California, Berkeley — *Expected Graduation: May 2022*

Bachelor of Arts in Computer Science, Data Science

Relevant Coursework: Data Structures, Principles and Techniques of Data Science, Structure and Interpretation of Computer Programs, Designing Information Devices and Systems, Multivariable Calculus, Discrete Math and Probability

## *PROJECTS*

Retro Arcade Machine — *Lua* — April 2020

- Programmed traditional retro games Pac-Man, Snake, Pong, and a custom street fighter inspired game with multiplayer functionality for a custom designed 3' x 4.5' wooden Retro Arcade Machine
- Designed algorithm for ghosts to chase Pac-Man and implemented physics for ball collision in Pong
- Designed player selection, help menu, and game over screen on Figma in the traditional pixelated retro style
- Games integrated on a Raspberry Pi 4 in programming language Lua using the Love framework

Bear Maps — *Java* — November 2020

- Implemented shortest-path search using the A* algorithm along with dynamic zoom and scroll functionality
- Performed image rasterization to render a full map of UC Berkeley by searching and stitching image files
- Rendered map images to display routing and respond to scrolling and zooming, similar to Google Maps
- Utilized a trie data structure for autocomplete search implementation and trees to store map image data

The Deque API — *Java* — September 2020

- Implemented two deque data structures, one linked list, one array based, both with dynamic sizes that can be expanded or contracted on both ends, and a randomized test based autograder to verify implementation
- Utilized interfaces, classes, recursion, booleans, and higher order functions to apply and test the deques

Ants Vs. SomeBees — *Python* — October 2019

- Created a tower-defense game inspired by Plants Vs. Zombies that combined functional and object-oriented programming paradigms to implement game logic and specifications
- Defined objects and classes and used inheritance and methods to implement 14 unique ant types
- Project involved extending and testing a large program specifically with added features and unit tests

## *ORGANIZATIONS*

theCoderSchool — *Computer Science Tutor* — November 2020 - Present

- Taught students the fundamentals of programming, problem solving, and algorithm design using a project based approach; developed personalized curriculums tailored to individual learning goals and skill levels
- Guided students through building their own applications using Java, Python, Scratch, and HTML/CSS

Cal Mentors — *Algebra Mentor* — September 2020 - Present

- Volunteered to virtually tutor a group of seven freshmen students from San Leandro High School with a partner every week to support them academically and help them transition to virtual learning

Theta Tau Professional Engineering Fraternity — *Philanthropy Chair* — January 2020 - Present

- Organized partnerships with the Himmati Foundation to provide free PPE to Berkeley homeless shelters and UC Berkeley's ONETrack International chapter to fundraise donations to alleviate the global orphan crisis
- Planned Letter Event to mail 50+ handwritten letters to essential workers, kids in hospitals, and the elderly
- Hosted Coffee and Conversations, a virtual event advocating mental health/suicide awareness; fundraised for the American Foundation for Suicide Prevention during Suicide Prevention Awareness Month 2020

## *SKILLS*

Technical Languages: Java, Python, SQL, HTML/CSS, C#

Technologies: Git, IntelliJ, NumPy, Pandas, Seaborn, LaTeX, Jupyter Notebook

Spoken Languages: English (fluent), Mandarin Chinese (conversationally fluent)

Hobbies: Playing badminton, raising houseplants, journaling, painting, and making future travel plans