

Reggie (Hong) Yiu Zheng

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EDUCATION

Brown University, Sc.B in Applied Mathematics-Computer Science, 3.56/4.00 GPA Providence, RI | Class of 2024

- Relevant Courses: Machine Learning, Computer Vision, Software Engineering, User Interface and User Experience

SKILLS

Technical: Python, Java, React, JavaScript, TypeScript, HTML & CSS, Praat, Figma, LaTeX, Matlab, Zero-Shot Machine Learning

Languages: Native speaker of Mandarin Chinese, Fuzhounese Chinese, and English

EXPERIENCE

Computer Science Research Assistant, *Brown University* Providence, RI | Apr 2023 – Present

- Undergraduate machine learning research assistant under Reza Esfandiarpour and Professor Stephen Bach
- Investigate improving the accuracy and explainability of zero-shot visual-language models, such as CLIP, by using classification via description from large language models (e.g., GPT-3), structured knowledge sources, and related auxiliary datasets

Computer Science and Mathematics Instructor, *Juni Learning* San Francisco, CA (Remote) | May 2022 – Present

- Execute advanced mathematics and computer science lesson plans from AP Calculus to Python Level 3 over Zoom for students ages 8-18 while adapting to student pace, interests, and needs
- Communicate with parents regularly, providing updates on student progress and results from assessments
- Maintain thorough records for each student, covering multiple courses, skill progression, and projects

Applied Mathematics Undergraduate Teaching Assistant, *Brown University* Providence, RI | Aug 2021 – Present

- Undergraduate teaching assistant for APMA 0360: Applied Partial Differential Equations under Professor Peyam Tabrizian
- Administer 2 weekly office hours and answer questions on the virtual platform Ed to guide students through assignments
- Grade 100+ weekly homework assignments and exams while providing feedback

Web Developer and Event Coordinator, *Out in Computer Science (Spectrum)* Providence, RI | Aug 2021 – Present

- Design and implement the Brown University Out in Computer Science website and create eye-catching event posters
- Host 10+ social events for LGBTQ+ student programmers at Brown University and Rhode Island School of Design

PROJECTS

Deep Neural Network, CNN Algorithm and Visualizer, *Python, Machine Learning* Providence, RI | Jan 2023 – Present

- Implement a k-layer feed forward neural network, a convolutional neural network, and a visualizer, training using stochastic gradient descent and backpropagation
- Train algorithm on the UCI Wine Dataset to predict the quality of wine given various attributes

Iterative Dichotomiser 3 (ID3) Algorithm and Visualizer, *Python, Machine Learning* Providence, RI | Jun 2021 – May 2023

- Implemented the Iterative Dichotomiser 3 algorithm and visualizer to create decision trees given training data by calculating the information gain and entropy of features and implemented a pruning algorithm to reduce overfitting

Better Brown University, *Typescript, React, HTML & CSS, Selenium, Java* Providence, RI | Jan 2022 – May 2022

- Developed, in a team, the Better Brown University website with functionalities such as a crowd-sourced event calendar and an algorithm that calculates the current occupancy of a campus location
- Hosted the website, stored and retrieved data from a cloud database, and implemented authentication using Firebase
- Worked on frontend web design, backend database and algorithms, graphic design, data collection, and Selenium testing

Syllabic Timing of the Miami English Dialect, *Python, Praat* Providence, RI | May 2021 – Aug 2021

- Investigated the influence of Spanish on the Miami English dialect by examining the syllabic timing of the dialect
- Collected data from speakers and non-speakers of the Miami English dialect and analyzed, using Praat, the correlation between the standard deviation of the consonantal intervals vs. the amount of time per utterance spent in vowels

Seam Carving Algorithm and Visualizer, *Java* Providence, RI | May 2021 – Aug 2021

- Programmed a seam carving algorithm and visualizer for content-aware image resizing that removes paths of pixels by calculating least importance based on deviance in RGB color value from neighbor pixels