

HARGEN ZHENG

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Education

University of California, San Diego

[Expected] **Aug. 2022 - June 2026**

B.S. in Data Science & B.S. in Mathematics-Computer Science · GPA: 4.0/4.0

San Diego, CA

University of California, Berkeley

June 2023 – Aug. 2023

Summer Semester Visiting Student · GPA: 4.0/4.0

Berkeley, CA

Relevant Coursework

- Linear Algebra, Vector Calculus, Intro to Probability, Intro to Stochastic Processes, Concepts of Statistics
- Intro to Artificial Intelligence, Recommender Systems and Web Mining, Optimization Methods for Data Science I/II, Principles of Machine Learning: Learning Algorithms (Graduate Course), Deep Learning, Intro to Computer Vision I
- Principles of Data Science, Theoretical Foundation of Data Science, Design and Analysis of Algorithms

Technical Skills

Programming Tools: Python · Java · R · HTML/CSS · C · Assembly

Technologies/Frameworks: PyTorch · Pandas · NumPy · Matplotlib · scikit-learn · JUnit · GitHub

Certificates: Machine Learning Specialization by DeepLearning.AI · Deep Learning Specialization by DeepLearning.AI

Projects

ACM AI Quarterly Project | *Python, PyTorch, Multi-class Classification, Streamlit*

Oct. 2023 - Jan. 2024

- Conducted EDA on an imbalanced kaggle dataset and built an automated pipeline for model training.
- Applied transfer learning with pretrained BERT (Bidirectional Encoder Representations from Transformers) model.
- The model classifies input text corpus into 1 of 16 MBTI personality types with $\approx 95\%$ validation accuracy.
- Deployed a Streamlit App that allows users to type in words and obtain classification results during showcase.

Semantic Segmentation with PASCAL VOC 2007 | *Python, PyTorch, ConvNet, Transfer Learning*

Feb. 2023

- Performed data augmentation and designed a class weight heuristic to deal with small imbalanced dataset issue.
- Implemented Fully Convolutional Network (FCN) baseline model and UNet architecture.
- Used IoU value, along with pixel accuracy, to evaluate model performances due to dominating background pixels.
- Leveraged the FCN ResNet-101 pretrained model to improve IoU from 0.0566 of the FCN baseline to 0.330.

Game Recommendation with Steam Dataset | *Python, scikit-learn, Recommender System*

Nov. 2023

- Implemented and trained Bayesian Personalized Ranking Model, and ensembled with popularity-based recommendation method to predict if a person would play a given game; ranked top 2% on the course leaderboard.
- Trained a Latent Factor Model with bias terms only to predict a person's play time on a given game.

Little Pac-Man | *Python, Adversarial Game, Variable Elimination, Inference*

June 2023 - July 2023

- Formulated Minimax, Alpha-beta Pruning, Expectimax adversarial search methods for Pacman to survive.
- Implemented Bayes Nets and Hidden Markov Models for inference tasks, such as predicting ghost positions.

Pattern Analysis on EEG for Enhanced Depression Diagnosis | *Python, EEG*

Oct. 2023 - Current

- Explore patterns between brain EEG data and severity of depression with OpenNeuro dataset.
- Conduced EDA to analysis noisy EEG data and identify main features through PCA and ICA.
- Potentially incorporate ML/DL models to extract features through learning to help pattern analysis.

Facial Emotion Detection | *Python, PyTorch, ConvNet, Transfer Learning*

Jan. 2023 - Current

- Explore ConvNet Architectures to build classifiers to recognize facial emotion given image inputs.
- Selected project lead; facilitated group meetings, searched for resources, and communicated with team members.

Experience

Halcioğlu Data Science Institute at University of California, San Diego

Sept. 2023 - Current

Undergraduate Teaching Assistant

San Diego, CA

- Developed programming assignments, prepared starter code, wrote unit tests, and graded submissions on Gradescope.
- Helped 500+ student by holding regular office hours and answering questions on EdStem.
- Communicated with instructor and redesigned the final course project to holistically assess students' programming skills.