Haimei Yu

She/her Email: hay140@ucsd.edu Tel: (+86)150-9213-6032

EDUCATION

University of California, San Diego (UCSD) 08/2017-Present

- ✓ **BS (Honors) in Cognitive Science with Specialization in Machine Learning & Neural Computation**
  BS in Cognitive & Behavioral Neuroscience
  Minor in Mathematics; Minor in Music
- ✓ **Overall GPA: 3.969/4.000**
- ✓ ***Good Standing*** *(09/2017-Current);* ***Provost Honors*** *(09/2017-Current);*
- ✓ **Neural & Cognitive Courses:** Cognitive Neuroscience (A+); Electrophysiology of Cognition (A); Brain Waves Across Scales (A+); Learning, Memory and Attention (A+); Distributed Cognition (A); Neuroanatomy and Physiology (A); Sensation and Perception (A+); Neurobiology of Cognition (A); Organismic&Evolutionary Biology (A), etc.
- ✓ **Computational Courses:** Advanced Machine Learning Methods (A+); Neural Networks/Deep Learning (A+); Neural Signal Processing (A+); AI Algorithms (A); Modeling&Data Analysis (A+); Introduction to Probability (P); Calculus & Analyt Geom/Sci & Engnr (P); Intro/Computer Science&Object-Oriented:Java (A+);Intro. to Statistical Analysis(A+), Data Science in Practice (A+), etc.
- ✓ **Graduate Level Courses:** Models, Algorithms, and Theories (Seminar on machine learning); Computational Model of Cognition;

RESEARCH EXPERIENCE

Research Assistant, Computational Cognition Lab, UCSD 01/2018-08/2020

Supervisor: Assoc. Prof. Ed Vul

Project 1: Relationship between Signalling and Price of Products

- ✓ Aim to find the correlation between common products' price variance and signalling potential that refers to people's counsumer behaviors for showing "social status".
- ✓ Built website with Javascript to get subject's ratings on signalling degree of different products.
- ✓ Wrote a web crawler in Python to scrape the data of products from department store websites, such as JCPenny, Sears, etc.
- ✓ Assisted to analyze the experimental data using R, calculated the correlations.
- ✓ Revising the paper in collaboration with the supervisor.

Research Assistant, Computational & Cognitive Neuroscience Lab, UCSD 07/2018-Present

Supervisor: Assoc. Prof. Angela Yu

Project 1: Model for Human Face Processing: Active Appearance Model Web Demo

- ✓ Helped to design and build an interface demo where people could get a rate of their faces after taking pictures for first impression in terms of attractiveness, friendliness, trustworthy, etc., which connected GUI interface with machine learning models and previous experimental data (mainly in MATLAB).
- ✓ Continued with implementing interface using MATLAB and Javascript, fixed software bugs, moved the interface demo from local to the server; Converted codes to binary.

Project 2: Investigation of Social Cognition Based on Face Processing

- ✓ Aim to study the relationship between face perception and social traits perception;
- ✓ Performed data collection, preprocessing, filtering and sorting data into different categories.
- ✓ Conducted methods, including principal components analysis (PCA), factor analysis (FA), and linear transition analysis (LTA), etc. to calculate some correlation coefficient and find latent variables.

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- ✓ Continue doing further analysis.

Project 3: Investigation of Social Cognition of Psychiatric Traits Based on Face Processing

- ✓ Aim to study the relationship between face perception and degree of depression and anxiety.
- ✓ Collected data from self-designed experiments, used PCA, FA, LTA, etc. to analyze correlation and latent variables.
- ✓ Still trying more methods for more analysis to find out the effect of psychiatric traits on face perceptions.
- ✓ Published a poster on 2021 SPSP(link), and writing a paper as the first author.
  Yu H, Huang J, Lind CH, Soltani S, Konishi AA, Howlett JR, Yu AJ. Relationship between psychiatric traits and face perception. Poster presented at: SPSP Convention; 2021 Feb 9-14; Virtual.

Research Assistant, Systems Neuroscience Lab, UCSD 07– 09/2018

Supervisor: Prof. Douglas A. Nitz

- ✓ Mainly trained rats to run certain routes on maze for research use.

SELECTED COURSE PROJECTS

Exploring Correlation of ECoG Signals During Movement of Different Fingers 06-07/2019

- ✓ Analyzed the ECoG dataset from the third choice-human dataset to find out the correlation between brain signals of each finger and actual finger flexions.
- ✓ Applied Fourier transform, spectrogram with STFT, bandpass filter to eliminate noise, and theta- gamma coupling to separate brain data of different finger reaction, then conducted Principle Component Analysis (PCA) dimensionality reduction, built correlation matrix, computed ECoG averaging of each finger.
- ✓ Suggested that movement of different finger produced different brain signals, also found a consistent pattern through all the channels that the closer the fingers, the more correlated their brain signals were.

Airbnb Price Predictors: Finding Affordable Areas for Tourists 09-12/2018

- ✓ Developed a predictor for Airbnb listing prices in San Diego through analysis of its correlation to accommodations, review scores, and location;
- ✓ Performed linear regression without/with PCA and quadratic regression on a dataset obtained from the website "Inside Airbnb" after data cleaning; conducted K-means on a scatter plot to map out the results;
- ✓ Learned how to implement PCA and K-means analysis in MATLAB and when is good to use them.
- ✓ Made a poster and presentation with 3 other teammates.

Image Classification on CIFAR 10 Dataset 06; 12/2020

- ✓ Compared the performances of convolutional network with different number of layers, different types of pooling functions, optimization methods and tried different number of epoch to see how they will influence the classification performance.
- ✓ Compared the performances of basic recurrent neural network (RNN), long short-term memory (LSTM), and gated recurrent units (GRU) on character prediction for the Shakespeare dataset with different parameters.

SKILLS/OTHERS

Teaching Assistant:

- ✓ **Course COGS 14A Introduction to Research Methods** (04–06/2018 , 15h/w) Led discussion sections, graded assignments and exams;
- ✓ **Course COGS 1 Introduction to Cognitive Science** (09– 12/2019 , 15h/w) Led discussion sections, made tests.

Language: Chinese Mandarin (Native); English (Proficient); Latin (Basic)

Computer skills: Java, JavaScript, PHP, MATLAB, R, Python, MS office programs

Member of the Phi Beta Kappa Society