

Yupeng Chen

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EDUCATION

University of California, Los Angeles

Los Angeles, CA

B.S. in Math of Computation and B.S. in Cognitive Science with a minor in Statistics

Sep 2018 – Mar 2022

- Cumulative GPA: 3.97, Major GPA: 3.98, GRE: 333/340

ACADEMIC EXPERIENCE

CalSIM (The California Simulation of Insurance Market)

Feb 2020 – Jun 2023

Advisor: Dr. Xiao Chen and Dr. Srikanth Kadiyala

UCLA Center for Health Policy Research

- Simulated firms' and individuals' decisions in the California insurance market to predict and analyze the impact of health policies such as the Affordable Care Act (ACA)
- Developed premium update algorithms, performance testing pipelines, and parallel computing frameworks
- Predicted the effect of Covid-19 on individuals' insurance choices across different demographics and income populations

Single-trial and Between-subject Classification of EEG signal on ADHD Patients

Jan 2021 – Aug 2022

Advisor: Professor Agatha Lenartowicz

UCLA Attention, Brain, and Data Science Lab

- Analyzed electroencephalography (EEG) data on ADHD patients during selected attention tasks
- Trained support vector machine (SVM) and convolutional neural networks (CNN) for diagnostic and behavioral classifications based on event-related potential (ERP) and event-related spectrum potential (ERSP) data

Locally Connected Neural Network Prediction of Time-dependent Concrete Slump

Jun 2021 – Dec 2022

Advisor: Professor Mathieu Bauchy

UCLA Physics of Amorphous and Inorganic Solids Lab

- Processed industry field tests data and implemented an algorithm to identify outliers with irregular slump patterns
- Built a convolutional neural network (CNN) to process aggregate gradation curves in concrete slump predictions and evaluated the performance of CNN against regular locally and fully connected neural networks
- Used SHapley Additive exPlanations (SHAP) analysis to examine feature importance and clustering behaviors

Relationship Between Source of Payment and Delivery Time of Newborns

Jun 2022 – May 2023

Advisor: Dr. Srikanth Kadiyala

UCLA Center for Health Policy Research

- Organized birth data from 2011 to 2019 in the United States from the National Vital Statistics System
- Evaluated the positive correlation between uninsured gravida and early morning delivery, which we explained with the negative correlation between uninsured and the scheduling of c-section
- Identified a significantly weaker association between health insurance status and early morning delivery among first births

Predictive Analysis of Risk Factors of Coronary Artery Disease (CAD)

Sep 2021 – Dec 2021

Advisor: Dr. Akram Almohalwas

Course Project for Intro to Data Mining

- Performed exploratory data analysis (EDA), developed a raking algorithm to handle missing values, and reduced input dimension with a stepwise feature selection

- Analyzed feature impact and recoded the subject's age and BMI to cope with non-monotonic trends
- Compared and contrasted the performance of logistic regression, random forest, and XGBoost

Telepsychiatry Evaluation for SCAN Health Plan

Jun 2020 – Sep 2021

Advisor: Dr. Imelda Padilla-Frausto and Dr. Xiao Chen

UCLA Center for Health Policy Research

- Designed a quasi-experimental approach to evaluate the efficacy of the telepsychiatry pilot program
- Quantified patients' health status and utilization history with claims and electronic medical records (EMRs) data
- Developed a random forest algorithm to match the demographics and pre-trial health status of the hypothetical control group

Prediction of Glass Viscosity Based on Chemical Composition Using XGBoost

Jan 2021 – Apr 2021

Advisor: Professor Mathieu Bauchy

UCLA Physics of Amorphous and Inorganic Solids Lab

- Prepared data for training by reassigning sample weights to compensate for uncommon chemicals and implementing stratification to maintain train-test balance
- Compared the performance of XGBoost model with linear regression and random forest
- Interpreted model output and feature contribution using SHAP analysis

Python Implementation of a Multi-agent Collaboration Bayesian Inference Model

Sep 2020 – Mar 2021

Advisor: Professor Tao Gao

UCLA Visual Intelligence Lab

- Replicated Rose E. Wang and Sarah A. Wu's work: *Too Many Cooks: Bayesian Interference for Coordinating Multi-agent Collaboration*.
- Defined the problem space in "Overcooked" using a multi-agent Markov decision process (MMDP) with partially ordered subtasks and implemented a Bayesian delegation algorithm for inverse inferencing and a bounded real-time dynamic programming (BRTDP) algorithm to search for optimal policy
- Built a graphic user interface (GUI) in Python to demonstrate the agent collaboration process and evaluate model performance

PROFESSIONAL EXPERIENCE

Cardinal Operations Co., Ltd.

Beijing, China

Operation Research Intern

Jul 2019

- Analyzed sale and storage data and reconstructed storage strategy to improve storage efficiency for a major grocery provider in China
- Incorporated Python tsfresh feature extractions in a autoregressive integrated moving average (ARIMA) model and improved 90-day sale prediction by over 20%

AWARDS AND HONORS

- Honors: *summa cum laude* (GPA: 3.97/4.0)
- Dean's Honor Lists (2018 – 2022)
- Finalist, UCLA Bruin Actuarial Society CSAA Case Competition (2019)

RELEVANT COURSEWORK

- Mathematics: Multivariable Calculus and Differential Equations, Linear Algebra, Analysis, Numerical Methods,

Stochastic Processes, Optimization, Graph Theory, Topology, Discrete Structures

- Statistics: Probability Theory, Mathematical Statistics, Linear Models, Experiment Design, Data Analysis and Data Mining, Probabilistic Decision-Making
- Computer Science: Object-Oriented Programming, Algorithms and Complexity, Machine Learning, Artificial Intelligence
- Health and Medicine: History of Modern Medicine, Stem Cell Biology and Policy, Behavioral Neuroscience, Cognitive Psychology, Human Memory, Language Development

SKILLS

- Programming Languages: C++, Python (Scikit-Learn, PyTorch, mpi4Py, unittest, SHAP), R, JavaScript, HTML/CSS (introductory)
- Data Analytic Tools: SQL, SAS, Stata, Excel, Tableau
- Other Tools: Git, Emacs, Unix

LEADERSHIP EXPERIENCE

UCLA Chinese Students and Scholars Association (UCLA CSSA)

Los Angeles, CA

President of Career Development

Sep 2019 – Jun 2021

- Hosted tutoring workshops and panels to share tips on resumes, interviews, and graduate school applications for the underclass students
- Organized recruiting and networking events with more than a dozen of domestic and international recruiters

DataRes @ UCLA

Los Angeles, CA

Project Manager

Oct 2019 – Jan 2021

- Extracted behavioral data logs from an E-commerce site and analyzed brand effect in market of electronic devices
- Modeled pricing processes in Uber and Lyft using linear regression, random forest, and gradient boosted trees

UCLA Bruin Actuarial Society

Los Angeles, CA

Intern Trainee

Mar 2019 – Jun 2019

- Organized social networking events for club members
- Redesigned a series of project-based Excel workshops to adjust for industry requirements