Li-Hsuan Huang

lhuang33@ucmerced.edu | +1 (951)-907-9668 | Github: Li-HsuanHuang

---

Education

Ph.D. candidate, Applied Mathematics 2013 - present
University of California, Merced (UC Merced)

Postgraduate Work, Applied Mathematics 2011 - 2013
California State University, Northridge

BA, Mathematics, Business Administration 2005 - 2011
California State University, Fullerton (CSUF)

Publications

- Bhat, H.S., Rodriguez, S., **Huang, L.**, Learning Stochastic Models for Basketball Substitutions From Play-by-Play Data, *Machine Learning and Data Mining for Sports Analytics Workshop (MLSA 2015) at European Conference on Machine Learning and Principles and Practice of Knowledge Discovery (ECML-PKDD)*
- Bhat, H.S., Rodriguez, Dale, Heit, **Huang, L.**, Citation Prediction Using Diverse Features, *Data Science and Big Data Analytics Workshop ICDM 2015*

Awards

- *USAP Research Fellowship*, UC Merced 2017
- *San Diego Supercomputer Center Graduate Fellow*, UC San Diego 2015
- *CSU-LSAMP Bridge to Doctorate Program Award Recipient*, California State University, Northridge 2011-2013

Skill Set

Languages: Python, R, Matlab, SQL
Technologies: SciPy, NumPy, Pandas, TensorFlow, Keras, scikit-learn, ggplot2, R Markdown, Git, LaTeX, RStudio, Shiny

Research Experience

CTMC using maximum-likelihood estimates Fall 2015 - present

- Built continuous-time Markov chains (CTMC) using maximum likelikhood estimates.
- Implemented CTMC on the NBA basketball dataset.
- Predicted game outcomes in the presence of absorbing states.
- Obtained best model accurary $\approx 75\%$ on test data.

Modeling time series using Markov models Summer 2017 - present

- Used Python to build Markov models (both continuous and discrete time).
- Applied continuous-time Markov chains (CTMC) to NBA basketball and ALS (disease) time series data.
- Applied discrete-time Markov chains (DTMC) to discrete datasets with finite states.
- Removed absorbing states by solving linear programming problem.
- Solved linear programming optimization problem using `cvxopt` and `mosek`.
- Achieved 0 training error on all datasets.
- Reduced root-mean-square error by 60% on the NBA basketball test data.

Relevant Coursework

Statistical Learning (machine learning), Numerical Analysis, Stochastic Processes, Mathematics to Deep Learning

Work Experience

UC Merced, *Merced, California* August 2013 - Present
Graduate Teaching Assistant

- Led 8 discussion sessions, graded assignments and exams, and recorded the scores in addition to holding office hours to answer student questions and help them understand the material. (Calculus 1 & 2, differential equations, probability and statistics, linear algebra, numerical analysis)
- Created Shiny web applications to help analyze the statistics of exam results and introduce challenging concept to students.

CSUF, *Fullerton, California* Spring 2011
Supplemental Instruction Leader

- Designed discussion session handouts and worksheets to supplement calculus lectures.