

Chunji Wang

chunjiw@gmail.com, github.com/chunjiw

Alhambra, CA 91803

(213) 344-7935

EDUCATION

- **University of Southern California** Los Angeles, CA
Ph.D. in Neuroscience Jul. 2011 – Aug. 2017
- **Tsinghua University** Beijing, China
Bachelor of Science in Physics Jul. 2007 – Jul. 2011

SKILLS

- **Theories:** Machine Learning, Natural Language Processing (NLP), Deep Learning, Scientific Computing
- **Languages:** Python, R, Matlab, SQL, Java, Mathematica, C#
- **Technologies:** Git, Shiny, MySQL, Spark, Kinect, CKAN, AWS, Linux

WORK EXPERIENCE

- **Innovation Solutions** Santa Ana, CA
Data Scientist Intern Summer 2015 & Spring 2016
 - **Summary:** Developed applications to record, analyze and report human movement kinematics and performance during Kinect video games and exercises.
 - **Data Acquisition:** Implemented an application **body-recorder** to acquire Kinect skeleton data and smooth it with an Unscented Kalman Filter (Matlab & C#). ~ 90% of noise and spikes are filtered out.
 - **Data Analysis:** Implemented an application to calculate human anatomical joint angles from Kinect skeleton data (Matlab & C#), allowing further analysis of human movement patterns in anatomical terms.
 - **Report and Visualization:** Designed and implemented a web application to report full kinematics performance history to users and physical therapists (R, Shiny & SQL) with intuitive graphics.
- **SixThirty Incubator** Pasadena, CA
Data Scientist Jul 2015 – Aug 2016
 - **CKAN:** Set up CKAN Open Source Data Portal Platform in Linux environment; Deployed the platform onto AWS Cloud and Google Cloud, enabling SixThirty to publish and share datasets.
 - **LA Crime Data Analysis:** Analyzed “LA SHERIFF CRIMES” Open Dataset with a linear model to predict crime rate based on location and time of the day.

RESEARCH PROJECTS

- **Human Movement Analysis::**
 - **Movement Planning:** Simulated human arm movement in state space via Optimal Control theory implemented by iterative Linear-Quadratic Regulator and Dynamic Programming in Matlab; Showed that a moderate movement velocity achieves the best accuracy.
 - **Movement Learning:** Analyzed 10+GB upper extremity kinematics data via Matlab, R, and SQL; Extracted movement patterns and variability patterns via PCA and other dimension reduction methods; Unraveled the relationship between movement patterns and movement learning.
 - **Movement Learning Prediction:** Developed dynamical State Space Model with Mixed Effects to investigate the effects of rehabilitation training, allowing customization of training schedule and prediction of future performance for each individual.
- **Customer Churn Prediction:** Developed regression, tree-based, and KNN algorithms to predict customer churn probability based on labeled data via Python and Spark. Achieved more than 90% accuracy.
- **Word Prediction:** Developed an application **wordpred** to predict the most likely following word in real time while a user is typing. Tokenized 2GB text data to train an ngram model. Deployed via Shiny framework.
- **Topic Modeling:** Grouped unlabeled textual documents and inferred latent semantic structures via Python. Extracted features by Term Frequency - Inverse Document Frequency (TF-IDF). Trained K-means and Latent Dirichlet Allocation(LDA) models. Identified latent topics and keywords of each document for clustering and calculated document similarity. Visualized results by Principal Component Analysis (PCA).