CONG PENG

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SKILLS:

Programming: Java, Python, C++, PHP, MATLAB, SQL, knowledge of Linux / UNIX
Language: English, Chinese (native)

EDUCATION:

University of California, Los Angeles (UCLA) Expected 2017.12
- Electrical Engineering, Signals & Systems (current GPA: 3.5/4)

Beijing University of Posts and Telecommunications (BUPT) 2012.08 - 2016.07
- Communication Engineering (GPA : 86/100)

Instituto Superior Tecnico, Lisboa, Portugal 2015.02 - 2015.06
- Electrical and Computer Engineering

EXPERIENCE:

EL ENGR 219: Large-Scale Data Mining: Models and Algorithms (Python & MATLAB) Present

Advisor: *Roychowdhury, Vwani* *UCLA*

- Regression Analysis: Basic implementation of Regression Models (Linear Regression, Ridge Regression, Logistic Regression, Polynomial Regression, etc.) on network backup and housing dataset, along with basic techniques to handle over-fitting by cross validation and regularization.
- Classification Analysis: Implementation of text data modeling strategies and different feature extraction strategies (TFxIDF, LSI, PCA and etc.) on '20 *Newsgroups'* dataset with a various learning algorithms (Linear SVM, soft margin SVM, Naïve Bayes, logistic regression and etc.). (Both two-class and multiclass Classification)
- Collaborative Filtering: Implemented collaborative filtering called "Alternating Least Squares" to build a recommendation system on the *'MovieLens'* dataset with a volume of 100,000 movie rating data. (Matrix Factorization Toolbox in MATLAB and NMF in Python)

[Future Topics]
- Unsupervised Methods for Data Modeling (K-means clustering, PCA, ICA, NCA, etc.)
- Supervised Classifiers: SVM, Neural Networks, etc.
- Simple applications: Online Advertisement, Recommendation Engines, Gene Networks, Speech modeling, etc.

Advanced Algorithm Analysis on Wi-Fi Locating Based on Automatic Path Tracking (Java, Python & SQL)

Advisor: *Ke Xu* *Tsinghua University* 2015.11 - 2016.05
- Implemented K-means clustering algorithm to learn features of actual human trajectories.
- Summarized 3 important patterns along the human trajectories, set a criteria for further evaluation in localization and revised the localization trajectory with given pattern rules.
- Improved localization accuracy according to a well-defined localization algorithm by overall 10%.

COM SCI 143: Relational Database Management Design (C++, SQL, PHP & HTML)

Advisor: *Junghoo Cho* *UCLA* 2016.9 - 2016.12
- Built an open-ended Movie Database system allowing the user to search for the information of Movies and Actors through a Web interface. (SQL, Web application)
- Bruinbase Design, implemented B+ tree index on Bruinbase which can efficiently retrieve the information from the database. (System Design, RDBM)

Learning Bayesian Networks (Java) *Instituto Superior Tecnico* 2015.02 - 2015.06
- Implemented Greedy Hill Climbing algorithm and random restarts in Java to learn the experimental data from the training set.
- Discovered the best structures supported by 2 different scoring algorithms, log-likelihood and minimum description length.
- Computed the parameters of the structure and predicted exact value successfully.

Navigation of Mobile Robot (MATLAB) *Instituto Superior Tecnico* 2015.04 - 2015.06
- Analyzed the path condition carefully, and tested the sensitivity of ultrasound sensors.
- Designed one possible controlling algorithm based on 2 ultrasound sensors to navigate the robot to move around the offices without colliding with potential obstacles.

Weather parameters monitoring and sharing based on WeChat Common Platform (PHP) 2014.03 - 2014.06
- Obtained data from the database collected by the sensors.
- Built up one WeChat platform which can interact with the subscribers by informing weather parameters collected by sensors, and displayed requested information on the screen in user-friendly way.