Kaiyuan(Eric) Chen

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Education

University of California, Los Angeles — Los Angeles, CA

- *B.S. in* ***Computer Science*** — *July 2016 – June 2020*

  GPA: ***3.96****/4.0* *Major GPA* ***4.0****/4.0*

Experience

- **University of California, Los Angeles**

  Research Assistant, Wireless Networking Group, Advisor: Prof. Songwu Lu — *Since Spring 2018*

  Preprint: **Sampling by Causal Graph**
  - Used Missing Not At Random graph structure to hide true joint probability distribution from adversary.
  - Proposed an optimization approach for the missingness graph
  - Implemented the missingness graph algorithm as a module

  Demo: **Machine learning on Edge**
  - Designed and implemented a face-detection and MaskRNN-based edge server demo to prove network transmission is still the bottleneck for modern deep learning applications.
  - Deployed this application to Android platform

  Project: **LTE Cross Layer Analysis**
  - Implemented packets analyzers for packet dependency among different LTE layers.

- **University of California, Los Angeles**

  Research Intern, Mathematics Department, Advisor: Prof. Deanna Needell — *Summer 2018*
  - Project: **Classification on Large-scale Lyme Disease Data**
  - Proposed dual neural network model for mining the difference between well and unrecovered patients and providing interpretable recommendations for unrecovered patients
  - Implemented various data mining and classification methods to find inherent patterns between features of recovered and unrecovered patient groups

- **Siemens Ltd**

  Software Engineer Intern — *Summer 2017*
  - Project: **Industrial Data Anomaly Detection**
  - Proposed a dynamic Bayesian model for real-time high dimensional anomaly detection for industrial data
  - Deploying various clustering approaches for time-series industrial data

Published Works

[1] **Kaiyuan Chen** and Jinghao Zhao. "Skip The Question You Don't Know: An Embedding Space Approach". *In Submission to International Joint Conference on Neural Network(IJCNN)*. Budapest, Hungary, June 2019.

[2] **Kaiyuan Chen**, Rong Huang, Diyi Liu, Catherine Wahlenmayer, and Jiewen Wang. *Classification of Large-Scale Lyme Disease Data*. Poster and abstract in *Joint Mathematics Meeting(JMM) by Mathematical Association of America*. Baltimore, Jan. 2019.

[3] **Kaiyuan Chen**, Jingyue Shen, and Fabien Scalzo. "Skull Stripping Using Confidence Segmentation Convolution Neural Network". In: *International Symposium on Visual Computing(ISVC)*. Las Vagas, US, Nov. 2018.

[4] Wenchao Wu, Yixian Zheng, **Kaiyuan Chen**, Xiangyu Wang, and Nan Cao. "A Visual Analytics Approach for Equipment Condition Monitoring in Smart Factories of Process Industry". In: *IEEE PacificVis Conference*. Kobe, Japan, Apr. 2018.

[5] **Kaiyuan Chen** and Benqiang Wang. "High-resolution Omnipotent Video Codec". ZL 2015 2 0197947.6. July 2015.

Recent Projects

- **Sampling With Original Data** — *Fall 2018*

  I designed a novel and extremely simple approach to encode an image by its original pixels by leveraging the positional information and denoising autoencoder(DAE) scheme. It can use 37 pixels out of 784 pixels to encode MNIST dataset and still reach 97% accuracy for MNIST classifiers. This project is still under preprint.

- **LSTMxWave** — *Winter 2018*

  LSTMxWave is a **machine learning** project that explores the usage of LSTM/RNN to process time-series data such as sound waves. As an autoencoder based on LSTM neural network, it can predict, reconstruct and detect novelty data points from waves.

- **ClassUCLA** *Since Fall 2017*

  ClassUCLA runs on a server to automatically check for open seats of classes in UCLA. It notifies users by SMS once the class is available or user's requirement is satisfied. It has a full functioning **web crawler** and **server-side database** and handles interactions by Twilio. It is now used by 400+ users every quarter and this number is still growing.

Honors and Awards

Highest Distinction of International Euclid Mathematics Contest
Bronze Medal of "Cup of Hope" National Mathematics Invitational Tournament

Selected Course List

- **CS 219 Cloud Computing** *Prof. Songwu Lu*
  Graduate Level lecture about cloud computing and system design principles.

- **CS 260 Machine Learning** *Prof. Quanquan Gu*
  Graduate Level lecture about foundational theories and algorithms of machine learning, for example, PAC learnability, Stochastic Gradient Descent.

- **Stats 231 Pattern Recognition and Machine Learning** *Prof. Song-Chun Zhu*
  Graduate Level lecture about classic statistical pattern recognition algorithms, for example, bayesian decision theory, parametric and non-parametric learning, component analysis.

- **CS 269 Natural Language Processing** *Prof. Kai-Wei Chang*
  Graduate Level seminar about state-of-art natural language processing algorithms

- **Math 131AH Real Analysis** *Prof. Christina Kim*
  Honor real analysis lecture that introduces underlying theories and establishes mathematical rigor