Chengyuan Deng

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EDUCATION

Rutgers University, New Jersey, USA
Master of Science in Computer Science, **GPA: 3.67** *Sep 2018-May 2020*

Tongji University, Shanghai, China
Bachelor of Engineering in Electrical Information Engineering
Minor: Applied Mathematics, **GPA: 3.62** *Sep 2014-Jun 2018*

Hong Kong Polytechnic University, Hong Kong
Exchange student in Computer Science *2017*

PUBLICATIONS

C.Wang, **C.Deng**, V.Ivanov, *"SAG-VAE: End-to-end Joint Inference of Data Representations and Feature Relations"*, arXiv preprint at `https://arxiv.org/abs/1908.01672`.

C.Wang, **C.Deng**, S.Wang, *"Imbalance-XGBoost: Leveraging Weighted and Focal Loss for Imbalanced Binary Classification with XGBoost"*, arXiv preprint at `https://arxiv.org/abs/1908.01672`.

EXPERIENCES

Recurrent.ai, Remote
Research Intern(NLP), advised by ***Zhilin Yang*** *Sep 2019 - Present*
- Pre-processed and trained a new-collected Chinese text-to-speech dataset with Tacotron and Tacotron2
- Introduced a novel approach of leveraging Pinyin in the training process
- Outperformed former results and achieved long-text generation

Rutgers University, New Brunswick, New Jersey
Teaching Assistant, Intro to Computer Science *Sep 2019–Present*
- Graded assignments, exams and projects for computer science undergraduate classes
- Assisted the instructor with course logistics

Tongji Fintech and Big Data Research Institute, Shanghai
Software Engineering Intern *June 2017–Aug 2017*
- Designed and developed the **first** software product of accurate alleviation upon Guizhou Province based on blockchain API

Haitong International Securities, Ltd, Shanghai
Data Analysis Intern *July 2016–Sep 2016*
- Analyzed the daily stock quotation and cyclical data by setting up models then predicted trends
- Proposed financial models for cutting-edge companies and wrote reports, with **200+** pageviews daily

KEY SKILLS

Programming Language	Python, Java, C++, C#, MATLAB, R, Javascript, SQL
Web Development	HTML/CSS, JavaScript(Vue, React, Node)
Frameworks	PyTorch, Tensorflow, fastai, OpenGL
Utilities	Command Line(Linux), Git, AWS, SQL Databases, Firebase, Tableau

SELECTED RESEARCH PROJECTS

GSA-GCN: Leveraging Global Information in Self-attention Graph Convolution Networks
Machine Learning research, advised by Prof.Sungjin Ahn *Nov 2019–present*

- Proposed Global Self-attention Graph Convolution Networks, a novel representation for graph data leveraging self-attention mechanism. Experimented classification and clustering tasks on multiple benchmark datasets.
- This work is likely to be published soon.

Intersection Congestions Prediction

Kaggle contest *Oct 2019*

- Implemented multiple regression models, neural networks, CatBoost, LightGBM, XGBoost to predict waiting time and distance at intersections in four cities: Atlanta, Boston, Chicago and Philadelphia.
- XGBoost outperformed other approaches, scored 64/62.

Hybrid Neural Network Based Movie Recommendation System

Data mining course project, advised by Prof.Yongfeng Zhang *May 2019*

- Proposed a novel recommendation system with sliding-window convolution and various neural networks training on different movie features, also integrated matrix factorization methods for comparison.
- The system included following functions: predicting ratings, top n recommendation list, top n similar movies, top n other favorite movies.
- **PAPER AVAILABLE**

Diverse Animal Recognition at Wild Watch Kenya

Computer vision research, advised by Prof. Michael Lesk *May 2019*

- Pre-processed raw images collected from Serengeti National Park, implemented ResNet and successfully recognized multiple animals in the images.
- Developed an interative web application and deployed the model for presentation.
- **DEMO AVAILABLE**

Semi-supervised Sound Separation from Single-channel Mixtures

Machine learning, spectral analysis *Mar 2018*

- Semi-Supervised Separation of Sounds by Probabilistic Latent Component Analysis, which is essentially a EM-style non-negative matrix factorization algorithm.
- Given sample of one sound, this algorithm learns its frequency features from spectrogram and can factor out and extract it from mixture of other sounds.Experimented on piano and drum sounds.
- **DEMO AVAILABLE**

Towards Tunable Consensus Clustering for Functional Brain Connectivity on Music FMRI Analysis

Music FMRI research, advised by Prof. Asoke Nandi *Jan 2018*

- Implemented Bi-CoPam algorithm, which synthesized three clustering algorithms, namely K-Means, hierarchical clustering and SOM into consensus partition matrices to optimize results, corresponding to specific brain zones.
- Located commonly responded brain zones precisely by training FMRI images of people listening to music pieces, which can be classified into liked and happy, liked and sad, disliked and happy, disliked and sad.

C# Based Development of Temporary Speed Restriction Server Simulation System

Undergrad Capstone *Jun 2018*

- Developed a integrated server system for centralized traffic control, radio block center, train communication control and adjacent TSRS.
- Distributed on the train dispatching control simulation system in the lab of Tongji University.

HONORS AND AWARDS

- Yamaha Asian Music Scholarship of Honorable Mention, **Piano Performance**, *2017 Shanghai*
- ACM Programming Contest, Shanghai Regional, **First Prize**, *2018 Shanghai*
- Mathematical Modeling Invitation of U.S.A. **Second Prize**, *2018 Shanghai*
- National Undergraduate Contest in Mathematical Modeling, **First Prize**, *2017 Shanghai*
- National Undergraduate Contest in Electrical Design, Third Prize, *2017 Shanghai*

LEADERSHIP

- **President,** Student Pianist Association of Tongji University.
- **Program Manager,** Junior Achievement.
- **Volunteer,** mathematics teacher in elementary school.