Yan Pan

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Education

Carnegie Mellon University — *Pittsburgh, PA*

B.S. in Computer Science, Concentrations in Machine Learning & Computer Graphics, QPA: 3.95/4.0 — *Aug. 2019 - May. 2023*

10-701 Introduction to Machine Learning (PhD)
15-213 Introduction to Computer Systems
21-355 Principles of Real Analysis I
15-210 Parallel and Sequential Data Structures and Algorithms
15-251 Great Ideas in Theoretical Computer Science
21-325 Probability

The High School Affiliated to Renmin University of China — *Beijing, China*

High School Diploma, Early Development Program — *Sep. 2012 - Jul. 2019*

Experience

Peking University — *Beijing, China*

Student Researcher — *Sep. 2017 - Dec. 2018*

- Conducted research at Institute of Remote Sensing and Geographical Information Systems at Peking University.
- Analyzed spatial and temporal features of shared bike distribution with geographical big data.
- Designed and implemented LSTM model in Keras to predict the demand for shared bikes.
- Authored and published research paper as the first author.

The High School Affiliated to Renmin University of China — *Beijing, China*

Student Instructor — *Feb. 2019 - Jun.2019*

- Co-instructed a full semester elective course *Mathematical Modeling and Application* for high school students in Spring 2019.
- Designed course materials in optimization, clustering, differential equation, and graph theory.
- Instructed students in the design and implementation of course projects.

Projects

Music Generation with Deep Learning — *GitHub | Course Link*

PyTorch, Python — *Oct. 2020 - Dec. 2020*

- Working on generation of classical piano music using generative deep learning models.
- Designed and implemented LSTM-RBM model from scratch for randomized chord pitch generation in PyTorch.
- Implemented chord duration generation with LSTM to make more diversified rhythms.

BestMoment (TartanHacks 2020) — *GitHub*

OpenCV, Python — *Feb. 2020*

- Implemented face detection, face alignment, and similarity detection in OpenCV to automatically extract screenshots in video.

Dynamic Memory Allocator in C — *Course Link*

C, x86 Assembly — *July. 2020*

- Implemented a dynamic memory allocator in C with 74.2% utilization.

Skills

Programming Languages Python, C++, C, Standard ML, matlab
Platforms & Libraries PyTorch, TensorFlow, Keras, scikit-learn, OpenCV
Software Toolkits LaTeX, Linux, Git, Vim
Natural Languages Bilingual in English and Chinese

Honors & Awards

Dec 2018 **First Prize,** Shing-Tung Yau High School Science Award - Computer Award.
May 2018 **Finalist,** International Mathematical Modeling Challenge (IMMC), International.
May 2018 **Outstanding,** International Mathematical Modeling Challenge (IMMC), Greater China.
Aug 2017 **First Prize,** DengFeng Cup High School Academic Contest - Data Mining.