ZILIN (SHELLY) REN

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EDUCATION

University of Pennsylvania, Philadelphia *Sep 2022 - 2023*
Major: Master of Science in Engineering (MSE) in Data Science

Carnegie Mellon University, Pittsburgh *Sep 2018 - May 2022*
Major: Bachelor of Science in Statistics and Machine Learning (GPA: 3.78)
Minor: Machine Learning

SKILLS

Programming Languages: Python, Java, R, SQL, C, Standard ML(SML/NJ)
Software & Tools: MySQL, Git, GCP, AWS EC2, Docker, Jupyter notebook, Pytorch

RELEVANT COURSE

Convex Optimization, Deep Learning, Introduction to Machine Learning (PhD), Data Structure for Application Programmer (Java), Natural Language Processing, Algorithm and Advanced Data Structure

WORK EXPERIENCE

Teaching Assistant of Intro to Machine Learning 10-301/601 *Spring 2022*
Carnegie Mellon University, School of Computer Science
- Assist in teaching machine learning algorithms to 500+ student class taught by Prof. Matt Gormley.
- Maintain Github course website and lead recitations cover ML topics such as Neural Networks, SVM, and PCA.

Machine Learning Researcher & Engineer Intern *Dec 2020 - Jan 2021, June 2021 - Aug 2021*
Shenzhen MinDe Electronics Technology Ltd.
- Conduct research of object detection techniques and common object detection practice in Deep Learning.
- Self-learn and **individually** coded YOLOv3 from scratch using **Pytorch** to perform deep learning object detection on 30,000+ barcode and QR code images, and achieved above 0.8 F1-score.
- Help the company to explore a possible new way to carry out their traditional Barcode and QR scanning business.

RESEARCH EXPERIENCE

Deep neural network parameter quantization - Instructor: Prof. Bhiksha Raj *Spring 2021*
Deep Learning Researcher
- Perform K-means network parameter quantization basline of MLP and CNN using ONNX package in **Pytorch**.
- Develop a new K-means loss function training for network parameters clustering, and run experiments in **Pytorch**.
- Ideally reduce memory use by compressing neural network model size, and accelerate inference time.

PROJECTS

GAN music generation using CNN based model *Fall 2022*
Machine Learning Engineer & Software Engineer
- Use CNN based generative adversarial network to generate MIDI format music with normalized random input.
- Analyze model performance quantitively using PyPianoroll package and discover patterns for different model.

NLP Question Asking and Answering System *Fall 2022*
Software Engineer
- Generate proper questions from Wikipedia articles, and provide concise and accurate answers for those questions.
- Use POS tagging, NER tagging, Dependency parsing to perform sentence parsing and semantic analysis in **python**.

Face Classification, Phoneme to Text, Voice to text translation *Spring 2021*
Software Engineer
- Use CNN, RNN, LSTM with Attention, etc, to perform deep learning tasks using **Pytorch** framework.
- Ranked top 10% for all assignments in **Kaggle** Competitions (11-785 2021 Spring) among the 200+ students in class.