Zhikai Chen

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EDUCATION

University of Michigan, Ann Arbor, Mi. **Aug. 2021 – Present**

Master of Science, Electrical and Computer Engineering, Signal Processing and Machine Learning

- Cumulative GPA 3.89/4

Purdue University, West Lafayette, IN. **Aug. 2017 – May 2021**

Bachelor of Science, Computer Engineering, School of Electrical and Computer Engineering

Bachelor of Science, Mathematics, School of Science (**Dual Degree**)

- Cumulative GPA 3.62/4
- Dean's List for 8 semesters
- Semester Honor for 6 semesters

RELEVANT EXPERIENCES

Research:

Project member, Qiime2 Neural Network Plugin ***Jan. 2021-May 2021***

- Created Neural Network plugin for a python library to predict microorganism species with their DNA fragments
- Used variant auto-encoder (VAE) for DNA data augmentation task

Project member, Online Cloud Data Engineering Project ***May 2020 – May 2021***

- Used software development to create an engineering application via continuous deployment, code quality tools, logging, instrumentation, and monitoring
- Utilized Python, machine learning, cloud, and Linux skills to develop data engineering applications

Project member, Deep Reinforcement Learning Based Optimal Control Complex System ***Jan. 2020-May 2020***

- Implemented pypownet (Python Power Network) to emulate a power grid subject to a set of temporal injections for discretized timesteps
- Implemented DQN (Deep Q-Network) and established uncertainty scenarios for this power system
- Completed uncertainty quantification for DQN reinforcement learning algorithm with artificial uncertainty scenarios

Internship:

AI Fitness Project, Jiangsu Richfuture Information Technology Co., Ltd., China ***July 2020-Oct. 2020***

- Worked closely with AI team to build a Neural Network system to solve classification problems on images
- Managed machine learning algorithms for AI Fitness project that uses cameras to collect indicator data from customers in sports to help select suitable fitness courses and predict post-training effect

Projects:

Course Projects, University of Michigan ***Aug. 2021 – Present***

- Human Depth Network (HDN): trained a semi-supervised deep neural network to learn with high fidelity the depth of dressed humans through watching social media dance videos

Course Projects, Purdue University ***May 2019-May 2021***

- Adversarial training for defending against attacks: implemented various attacks (fast gradient method, projected gradient descent, Carlini & Wagner attack, deep fool attack) and defend strategies on a target classifier using MNIST (handwritten digits) dataset
- Autoencoders: implemented various types of Autoencoder Neural Networks using MNIST dataset
- Generative Adversarial Networks (GANs): implemented GANs to produce images that resemble samples in MNIST dataset
- One-shot learning: Implemented neural turning machine (NTM) and memory-augmented neural network (MANN) to accomplish one-shot learning tasks on omniglot dataset
- Convolutional Neural Network: designed neural network to complete classification tasks on Cifar100 dataset
- Digital Saving Pot: designed a saving pot with functions of digital display, deposit, withdrawal and saving goal monitoring
- Data engineering analysis of New York bike traffic: used machine learning algorithm to analyze and predict bike traffic for New York City

SKILLS

- Programming languages: Python, Julia, C++, Java, C, R, MATLAB, Verilog
- Machine Learning Libraries: TensorFlow, PyTorch, Keras, Scikit-Learn