

Education

University of Washington, Data Science and Statistics, 2018 - 2019.

Relevant Courses: CSE 143 Computer Programming II, INFO 201 Technical Foundation, CSE 154: Web Programming, CSE 416 Introduction to Machine Learning, CSE 414 Introduction to Database Systems

Average GPA: 3.97 (Cumulative)

University of Maryland, Computer Science, 2020-2022.

Relevant Courses: CMSC 132 Object Oriented Programming II, CMSC 250 Discrete Structures, CMSC 216 Intro to Computer Systems, CMSC 351 Algorithms

Awards and Competitions

AIVIVN Sentiment Analysis Competition

Spring 2019

- Design a text classification system for positive v.s negative product reviews (in Vietnamese)
- Models: word2vec + weighted average of (hierarchical) self-attention neural network, residual network.
- **Final Result: 1st Place in Public Leaderboard (F1: 0.90087) and Private Leaderboard (F1: 0.90012)**
- GitHub Repository: https://github.com/petrpan26/Aivivn_1

Emotion Recognition Competition 2019

Fall 2019

- Design a system to classify the emotion of the speaker from raw audio data
- Models: MFCC for preprocessing, convolutional neural network. Developed using the neural network toolbox (see below)
- Result: 8th place in the first round, invited to present in the second round.
- GitHub Repository: <https://github.com/nhatsmrt/erc>; Contest Website: <https://erc2019.com/>

Main Projects

Neural Network Toolbox

Summer 2019

- Implement common deep learning procedures and papers using PyTorch for quick prototyping and model developing.
- GitHub Repository: <https://github.com/nhatsmrt/nn-toolbox>
- Documentation: <https://nhatsmrt.github.io/nn-toolbox/>

Arbitrary Style Transfer

Summer 2019

- Given an arbitrary content photo and a piece of artwork, transfer the style of the artwork to the photo.
- Based on Huang and Belongie's paper "Arbitrary Style Transfer in Real-time with Adaptive Instance Normalization"
- Implemented using PyTorch and my toolbox (see above).
- GitHub Repository: <https://github.com/nhatsmrt/torch-styletransfer>

Detecting Insults from Social Commentary

Summer 2018

- Implement a GRU-recurrent neural network on Keras to classify whether a comment is insulting with **final F1 score of 84%**
- GitHub Repository: <https://github.com/nhatsmrt/DetectingInsults>

Coding Platform

Winter 2020

- A platform to practice solving algorithmic questions and host contests.
- Technology stack: Judge0 for evaluation. Django REST Framework (Backend); React (Frontend). Deployed on Heroku
- Website: <http://codingplatform-cp.herokuapp.com/>

Data Collection for Food Desert Prediction Project

Spring 2020

- Work done as part of a research project at University of Maryland Institute for Advanced Computer Studies
- Web scraping (selenium, BeautifulSoup4) for food data; Overpass API for public transport locations; Nominatim for cities' bounding boxes
- geopandas, rtree, and heuristics to speed up geometric queries (point to polygon, polygon to bounding box, etc.)

Skills

Proficient With

1. *Java (4 years):* Object Oriented Programming, Design Patterns, JUnit Unit Testing, Multithreading and Concurrency
2. *Python(4 years):* Data Science, Machine Learning, Deep Learning. Packages and tools proficient:
 - scipy, statsmodels, numpy, pandas, matplotlib, scikit-learn, pytorch, keras, geopandas, Google Colab
3. *Relational DBMS and SQL*
4. Data Structures and Algorithms

Familiar With:

1. *Full Stack Web Development:* Server-side with Django; Client-side with HTML, CSS, JavaScript, ReactJS
2. *Others:* R (dplyr, tidyr, ggplot2, shiny); git; C, gdb, valgrind; Unix, emacs; Spark, AsteriskDB and SQL++