

Education

University of Washington, Data Science and Statistics, 2018 - 2019. GPA: 3.97

Courses: Web Programming, Introduction to Machine Learning, Introduction to Database Systems

University of Maryland, Computer Science: Data Science, 2020-2022. GPA: 4.0

Courses: Introduction to Computer Systems, Algorithms, Organization of Programming Languages

Awards and Competitions

AIVIVN Product Review Sentiment Analysis Competition

Spring 2019

- Model: word2vec embedding + ensemble of attentional recurrent neural network and residual convolutional neural 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 with convolutional neural network.
- **Result: 8th place in the first round, invited to present in the second round.**
- GitHub Repository: <https://github.com/nhatsmrt/erc>

Work Experience

Software Engineering Intern at Verta.AI

Summer-Fall 2020

1. *Dataset and Metadata Versioning Functionality for Scala Client:*
 - Functional API with git-inspired immutable data types (Repository, Commit, Blob, etc.) and operations (merge, revert, etc.)
 - Works seamlessly with AWS S3 (data storage) and Spark MLLib (model development)
2. *Model Registry and Endpoint Deployment Functionality for Python Client and CLI:*
 - Register a model and expose it via an endpoint for prediction.
 - Allows for canary update, autoscaling and resource specification.
 - Available in Python script and command-line interface (implemented with Click).

Personal and Research 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.
- Implemented using PyTorch and my toolbox (see above), based on Huang and Belongie's paper.
- GitHub Repository: <https://github.com/nhatsmrt/torch-styletransfer>

Coding Platform for Solving Algorithmic Questions

Winter 2020

- Technology stack: Judge0 for evaluation. Django REST Framework (Backend); React (Frontend). Deployed on Heroku
- Prototype Website: <http://codingplatform-cp.herokuapp.com/>

Data Collection for Food Desert Prediction Research Project at the University of Maryland

Spring 2020

- Web scraping (selenium, beautifulsoup4) for food data; Overpass and Nominatim API for geolocation data
- Speed up API calls, geometric queries, etc. **up to 3-6 times** with multiprocessing and spatial indexing (geopandas + rtree)

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, geopandas, matplotlib, scikit-learn, pytorch, keras, Google Colab; argparse, click; pytest
3. *Scala (1 year):* Functional Programming Principles and Design Patterns.
 - Behavior-Driven Testing and Property Based Testing with ScalaTest. Big Data with Apache Spark and MLLib
4. *Relational DMBS and SQL*

Familiar With:

1. *Full Stack Web Development:* Server-side with Django; Client-side with HTML, CSS, JavaScript, ReactJS
2. *Other Technologies:* R (dplyr, tidyr, ggplot2, shiny); C, gdb, valgrind; Unix, emacs; AsteriskDB and SQL++; AWS S3
3. *Other CS and SWE Skills:* Agile Project Management via Jira; Software Versioning Control with Git and GitHub