FELIX ZHOU

Mathemagician & Engineer working with tranformation, analysis, and storage of structured and unstructured data

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EXPERIENCE

Software Engineering Intern
Encircle Inc.

📅 April 2018 – August 2018 📍 Kitchener, ON

- Developed features in **Tornado** and **React** to improve Encircle's web app
- Introduced **WebSockets** and **Observables** to load and update data asynchonously in real-time, improving efficiency by **5x**
- Implemented email feature to send reports through **Model-Daemon Method**, removing need to exit app in user workflow
- Improved user experience with **functional** React Components, reducing re-rendering for smoother user experience

PROJECTS

VM
CS246E: Objected Oriented Programming (Advanced)

📅 November 2018 📍 github.com/felix990302/vm

- Designed and actualized a **C++14** clone of the command-line text editor
- Followed **Object-Oriented Principles** and **Design Patterns** like **Decorator** and **Visitor** to produce modular and extensible code
- Implemented undos and redos through the **Command** pattern to minimize space complexity

Goose or Not
Hack the North

📅 September 2018 📍 github.com/felix990302/GooseOrNot

- Created an **Online Learning** application which recognizes geese with **Flask** and **TypeScript-React**
- Designed a **PostgreSQL** database with **ORM** to improve extensibility
- Combined **NNLIB** and **XGBoost** for classification with **90% accuracy**
- Deployed several **Heroku** instances with **PgBouncer** and **NGINX** for load balancing and increased transaction throughput

Inspired by Silicon Valley Season 4 Episode 4

NNLib

📅 April 2018 – September 2018 📍 github.com/felix990302/nnlib

- Created a light-weight Neural Network library with only **NumPy** as dependency
- Featured **L1, L2 Regularization** and **Dropout** to combat variance
- Implemented **Back-Substitution** and **Gradient Descent** through Chain Rule
- Abided by **PyPI** package structure and conventions including full **pytest** suite to improve compatibility with other Python packages

Faustin
YHacks

📅 December 2017 📍 github.com.tagsaidi/YHack

- Provided real-time suggestions in reaction to the emotion in speech
- Combined a **Deep Neural Network**, **IBM Watson** and **Volkaturi API** to analyze tonality and semantics to detect outliers due to factors such as sarcasm
- Classified speech in one of five emotional classes with **80% Accuracy**
- Launched the application via **AWS** on a **CentOS** server

PROFICIENCIES

C, C++, Java,
Python 3, Typescript, Scheme,
R, MATLAB, LaTex, MIPS

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TensorFlow, XGBoost, Keras,
scikit-learn, SciPy, NumPy,
PostreSQL, SQLAlchemy, NodeJS,
React, React-Native, Flask,

- -

Linux, Bash, Git, Phabricator

EDUCATION

Computer Science
Artifical Intelligence Option
Combinatorics and Optimization

University of Waterloo

📅 Sept 2017 – August 2022

4.00 Faculty GPA
Advanced Math courses
Advanced Computer Science courses

ACHIEVEMENTS

96th Percentile LeetCode

📅 2019

global rankings

- -

Term Dean's Honours List
University of Waterloo

📅 September 2017 – Present

for academic average above 85%

- -

Gold Medal
Burnaby Clef Festival

📅 June 2015

for piano performance of Polonaise in A major

- -

Gold Medal
Basketball BC Zone Championships

📅 April 2014

INTERESTS

music theory, quantum information, food