PENGNAN FAN

Incoming M. Math Student at uWaterloo

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EXPERIENCE

Medical AI Intern - ChromX Health

Data Analysis for GC Biomarkers Discovery

Aug 2022 - Sep 2022 Guangzhou, Guangdong

- Intern at ChromX Health on human breathe gas chromgraphic (GC) data for cancer detection
- Designing and implementing a data analysis procedure cancer detection from GC data
- Developing and maintaining a python package for GC data preprocessing, VOC detection, biomarker discovery, model selection and evaluation pipeline, and visualization

NLP Developer - KingMed Diagnostics

Medical NLP

Jun 2021 - Jul 2022 Guangzhou, Guangdong

- Member of KingMed NLP Team
- Project leader and NLP developer of KM-IRS, an BERT-based medical report explaining system
- Training, deploying and accelerating (distillation) of BERT-based sentence encoding model

Research Intern - McGill University

Temporal Action Localization on Hockey Videos

Dec 2019 - May 2021 Montral, Canada

- Supervised by Professor Martin Levine from Intelligent Multi-model Video Anaysis Lab at McGill Centre for Intelligent Machines.
- Assisting PhD students on building a hockey video temporal action location dataset (Tempucky)
- Traing BSN/Dual Encoding Network on the Tempucky dataset
- Implementing a video labelling tools in Python3

Machine Learning Intern - Huawei Technologies

Face Identification with Neural Architecture Search

May 2019 - Aug 2019 Beijing, China

- Internship program in summer 2019 at Huawei Beijing Research and Development Centre
- Applying PDARTS/PC-DARTS/Single-Path NAS to search for efficient face identification models
- Holding company-wide seminars about AutoML-NAS papers
- Assisting Huawei Noah's Ark Lab on NAS experiments

TECHNICAL SKILLS

- Programming Language: Python, Java, C
- Deep Learning: PyTorch, transformer, OpenCV
- Data Science: Numpy, Scipy, Pandas, Sci-Kit Learn
- Software Engineering: Git, UML, Umple, Gherkins, JUnit

EDUCATION

Master of Math

School of Computer Science, UWaterloo

January 2023

Enroll in Summer 2023

Bachelor of Software Engineering

Department of ECE, McGill University

January 2018 - May 2021

CGPA: 3.70/4.0

PROJECTS

Linus Engine: Breathe Data Analysis Package

- A python package for human breathe data analysis
- Served as main developer of this project
- Designed and implemented modules for GC data preprocessing, VOC detection, biomarker discovery, model selection and evaluation pipeline, and visualization

KMIRS: Medical Report Explaining System

- A BERT-based Chinese medical report explaining system for KingMed Diagnostics
- Served as project manager and main developer of this project
- Designed and Implemented the backend service involving a BERT-based encoding service and a ranking service

Video-Text Retrieval System

- 4-member design project supervised by Professor Martin Levine at McGill
- Developed the system based on *Dual-encoding for Zero Example Video Retrieval*
- Studied and implemented a contrastive loss based on MIL-NCE for the system

AI Player for Saboteur

- A group project from COMP424 at McGill, which a class competition of playing a two-player board game Saboteur
- Implemented AI Player with annealing and rule-based algorithm
- Achieved a rank of 7/161 in a tournament competition (Top 5% in class)

Modified MNIST

- A group project from COMP551 at McGill, which is a class competition on a modified MNIST dataset (MNIST with noise added to background)
- Developed our model based on LeNet 5
- Achieved an accuracy of 0.975