Yiqiao Qiu

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Education

Sun Yat-Sen University Guangzhou, China

Bachelor of Engineer in Computer Science *Sept 2018 – June 2022*

GPA: 3.8/4.0(top 30%) 3.94/4.0(top10%)(Major) **Average Score:** 88.6 91.2(Major)

CourseWork:

1. Math Courses

Mathematical analysis(94,100,95), Linear Algebra(84), Probabilistic and Statistics(98), Discrete Mathematics(88), Optimization theory(91), Combination Mathematics and Number Theory(94), Combination Optimization(89)

2. Computer Science Courses

C/C++ Programming(87, 95), Data Structure and Algorithm(90), Principle of Computer Organization(92), Principle of Operating System(92), Computer Network(85), Parallel and Distributed Computing(87), Principle of Database System(81), Foundations of Algorithm Design and Application(92), Compiler Principle(88)

3. Artificial Intelligence Courses

Artificial Intelligence(97), Pattern Recognition(92), Natural Language Processing(93), Reinforcement Learning & Game Theory(93), Computer Vision(88)

Publication

Yiqiao Qiu, Yixing Shen, Zhuohao Sun, Yanchong Zheng, Ruixuan Wang*, Changxiao Bin*, Weishi Zheng*, *SATS: Self-Attention Transfer for Continual Semantic Segmentation* (submited to CVPR 2022, in Review)

Yicheng Zhu, **Yiqiao Qiu**, Yanghui Rao*, *TDAN: Topic Driven Adaptive Network for Cross-Domain Sentiment Classification* (submited to DASFAA 2022, in Review)

Linkai Peng, **Yiqiao Qiu**, Ke Gong*, *CIA: CO-INTERACTIVE ATTENTION FOR SPOKEN LANGUAGE UNDERSTANDING* (submited to ICASSP 2022, in Review)

Research Experience

Continual Semantic Segmentation SYSU iSEE lab, Guangzhou, China

Researcher (Advised by Prof. Ruixuan Wang) *Sept 2020-Nov 2021*

- Class Incremental Learning(CIL) Semantic Segmentation: Explore how to use continual learning strategy on Segmentation Model to learn new classes and keep old classes. Successfully get **SOTA result and submit to CVPR 2022 as the first author**
- Task Incremental Learning(TIL) Semantic Segmentation: Explore how to use continual learning strategy on Segmentation Model to learn the segment of different scenes, in which one class objects belongs to only one scene. Construct related experiments on Medical Decathlon dataset and COCO dataset.

Transductive Ensemble Learning Semantic Segmentation SYSU iSEE lab, Guangzhou, China

Researcher (Advised by Prof. Ruixuan Wang) *Aug 2019-Aug 2020*

- Using the ensemble pseudo label of testing set from the previous model to help the semantic segmentation of medical images
- Explore how the high confidence part of testing set's pseudo label affects the training of segmentation model.

Lite Model Optimization and OpenSet Classification Exploration

SYSU HCP lab & DarkMatter AI Research(DMAI) Co. Ltd., Guangzhou, China

Researcher (Advised by Dr. Tianshui Chen) *July 2021-Oct 2021*

- Optimize and further improve the performance of lite object detection and classification models. Try to enhance the generalization ability of the model and eliminate the False Detection problems
- Explore OpenSet Classification strategies to distinguish the unknown objects with previous learned classes
- Combine lite models and OpenSet research to achieve a pipeline with outstanding performance

Cross Domain Text Sentiment Classification SYSU, Guangzhou, China

Researcher (Advised by Prof. Yanghui Rao) *May 2021-Sept 2021*

- Reimplementation results of baselines on Amazon Reviews Dataset
- Join the discussion of key innovation of some new method to improve the performance
- **Submit to DASFAA 2022 as the second author**

Spoken Language Understanding (SLU) DarkMatter AI Research(DMAI) Co. Ltd., Guangzhou, China
Researcher *July 2021-Sept 2021*

- process SLU data and run experiments
- Join the discussion of the dataflow and model architecture design
- **Submit to ICASSP 2022 as the second author**

Work Experience

Video Algorithms(Computer Vision) Development and Optimization ByteDance, Shenzhen, China
Video Algorithms Intern Engineer *Nov 2021 – Present*

- Development and Optimization of Video's real-time Super-Resolution Algorithms. Using lite DNN models to perform Super-Resolution to improve the video quality in large scale Real Time Communication products
- Development of real-time video understanding and parsing algorithms, including video Semantic Segmentation and Object Detection

Computer Vision Algorithms Development and Optimization
SYSU HCP lab & DarkMatter AI Research(DMAI) Co. Ltd., Guangzhou, China
Computer Vision Intern Researcher *Aug 2021 – Sept 2021*

- Lite Object Detection and Classification Model Optimization and OpenSet Classification Exploration, optimize the combined overall performance on previous three scenes
- First Developer of a Generalized Semantic Segmentation pipeline. Second Developer of a PyTorch Distributed Training pipeline(**dldtrainer**, can be found in pip) and generalized Classification and Object Detection pipeline
- process SLU data and run experiments, join the discussion of the dataflow and model architecture design

Awards

Third Prize of Sun Yat-sen University Scholarship (2019, 2020, 2021)
Third Prize of Chaoshan Galaxy Award (2018), **full marks(150/150) of math** in college entrance examination(**only two** in Guangdong province)
First prize of Guangdong Province in the Chinese College Student Mathematics Competition (2019, 2020)
Sun Yat-sen University ACM Competition (second prize in 2019, third prize in 2020)

Projects

MIPS Single-Cycle CPU | *Verilog, Vivado, Logisim* Dec 2019 – Jan 2020

- Using vivado and verilog to design a 32 bits CPU supporting commands like add, sub, sw, lw, beq, jmp

Operating System | *C, x86 assembly* May 2020 – June 2020

- Using C and x86 assembly to develop an Operating System that can run on a bare virtual machine
- Developing boot-sector module, basic core module and process scheduling module

Reversi Playing Agent | *PyTorch* Dec 2020 – Jan 2020

- Reimplementation and extension of AlphaZero Reinforcement Learning on Reversi Chess Game
- Achieved **rank 1/50** in the class

Report of Meta-Gradient RL reimplementation and extension | *PyTorch, LaTeX* Dec 2020 – Jan 2020

- Reimplementation and extension of "Meta-Gradient RL with Objects Discovering Online"
- Run experiments in toy dataset and write a 10 page report

Technical Skills

Languages: Python, C/C++, SQL, x86 assembly, verilog
Developer Tools: Git, Docker, VS Code, Visual Studio, PyCharm
Libraries: Tensorflow, PyTorch, Transformers, NumPy