Yuyuan Feng
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Education

- **Xiamen University** — Xiamen, China
  Master of Science in Computer Science; GPA: 3.81 — *Sep. 2023 – Now*
  - **Relevant Courses**: Machine Learning, Deep Learning, Optimization, Computer Networks
- **Southern University of Science and Technology** — Shenzhen, China
  Bachelor of Engineering in Industrial Design; GPA: 3.55 (85.6/100) — *Sep. 2019 – July. 2023*
  - **Relevant Courses**: Calculus, Linear Algebra, Algorithms and Data Structure, Design Thinking

Publications

- **GPT4Battery: Cross-battery State of Health Estimation via Physical-Guided Test-time Prompt Learning with LLM,** Submitted to *ACM Multimedia, 2024*
  Yuyuan Feng, Guosheng Hu, Xiaodong Li, Jingwei Hu, Zhensong Hu and Zhihong Zhang*

Projects

- **Battery Life Prediction**: Implement the stae-of-the-art ML time series forecasting algorithms (such as patchTST, LLM4TS) for the prediction of the life of Li-ion batteries. Collect, pre-process and establish a personal benchmark dataset using Python and Pandas. Develop a custom *conda* environment and conduct a complete ML pipeline using Pytorch with 95% + prediction accuracy.
- **Time Series Representation Learning**: Implement a self-supervised pretraining framework for general time series analysis (through contrastively aligning the time- and frequency- representations in a latent space). Modify the pre-trained model to adapt to a classification task. Test the performance on more datasets with OOD shifts and get improved results.
- **Graph Representation Learning**: Implement two papers about self-supervised learning on graphs (regarding masked autoencoder and diffusion model respectively). Reproduce results and use NNI for hyperparameter searching.
- **Few-shot Anomaly Detection/Segmentation**: Utilize a pre-trained CLIP model for unsupervised anomaly detection and segmentation. Combine the word and image feature together for classification and use a memory bank to storage there features of reference images. Execute experiments and reproduce the results on more datasets.

Experience

- **Fengjiang Dynamic** — Shen Zhen, China
  Intern - Computer Vision Engineer — *Jul 2022 - Sep 2022*
  - **3D Object Detection**: Develop an algorithm to detect and locate an object in a given 3D coordinate using a R-GBD camera. Worked on the camera calibration, depth image process and training a yolo model.
  - **Drive a Robot Arm**: Use the set of SDKs and C++ source code to drive an industrial robotic arm under Linux system. Move the gripper to the given coordinates.
- **National University of Singapore** — Singapore
  Summer Workshop — *Jun 2022*
  - **Deep Learning Training**: Learn the theory and basic networks of morden deep learning. Practices of how to train, evaluate and use a DL model in Pytorch and Tensorflow.
  - **Group Project**: Build a system to help smooth human emotions during quarantines as a team. The project involves training a model to recognize emotions of a person through text, audio and image, upload it to the cloud using Flask and make reactions.

Research Interests

My research interest include but not limited to: Time Series, Large Language Models, Multi-modal Learning and Explanable AI.