Tingxi Li

tinzzy.li@gmail.com | +8615807660063| homepage

EDUCATION

BSc. Applied Chemistry — Leicester, UK | Sept 2019
University of Leicester, First Class Honours Degree

BSc. Applied Chemistry — Dalian, CN | Sept 2019
Dalian University of Technology

Visiting Student in Computer Science — Munich, DE | Apr 2022
Technical University of Munich
Teacher Assistant (TA): Data Structure

WORK EXPERIENCE

TENCLASS | AI research intern — Shenzhen, CN | Jan 2022 - Apr 2022

- Build a virtual host by deploying text to speech model and speech to video model on live streaming platform such as TikTok.
- Capture comments in live streaming and train the model to make proper repsonse.
- Build private video dataset for the company and fine-tune models on it.

RESEARCH EXPERIENCE

ADVERSARIAL ROBUSTNESS OF ROBOTIC ARM

- Research Assistant Intelligent Robotics and Vision Lab (IRVL) at UT Dallas.
- Design interfaces in Python to connect a physics engine with a differentiable renderer.
- Train a model with better accuracy for further adversarial attacks.
- Produce accuracy-based and energy-based adversarial examples. Investigate the features extracted by DQN algorithms and the decision boundaries of the model.

ADVERSARIAL ROBUSTNESS OF VISION TRANSFORMER

- Investigate the robustness of Vision Transformers (ViT). By feeding ViT models naturally corrupted images and patch- based adversarial images. ViT is proven to be more vulnerable than CNN under adversarial attacks.
- By visualizing the attention map of ViT, it is shown that attention is significantly drawn to the perturbed patch.
- By applying a negative data augmentation and modifying the loss function(add a temperature parameter T), the fooling rate of ViT is lower significantly from 60% to 30%.

SURVEY ON CREDIT CARD FRAUD DETECTION

- An analysis of popular financial fraud detection algorithms and put forward suggestions for improvement.
- Comparison of unsupervised outlier scores computed at different levels of granularity is performed and tested on a credit card fraud detection dataset.
- Use deep learning models such as STAN, DAE, and CNN. It is found that the current financial fraud detection models are dependent on the dataset, have high computational expenses, and are usually overfitted.
- The solution can be to improve the diversity of datasets and reduce the time and memory costs.

MISCELLANEOUS

Skills and Tools: Java, C++, Python, SQL, PyTorch, Tensorflow, PyBullet
Research Interests: Robust Machine Learning; AI for science
Languages: English / Mandarin / Cantonese / German