

Tingxi LI

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EDUCATION

Dalian University of Technology

Sep 2019 - Jul 2024

B.S. Computer Science

Dalian, China

B.S. Applied Chemistry

Technical University of Munich

Apr 2022 - Oct 2022

Computer Science (Exchange Student)

Munich, Germany

INTERNSHIP

Tenclass

Jan 2022 - Apr 2022

AI research intern

Shenzhen, China

- Responsible for building a virtual host for TikTok live streaming mostly based on an open resource project: wav2lip.
- Made modifications to the model and fine-tune it on a private dataset.

RESEARCH EXPERIENCE

Adversarial Robustness of Robotic Arm

Dec 2022 - Present

Research Assistant Intelligent Robotics and Vision Lab (IRVL) at UT Dallas

- Design two adversarial attack approaches for an object grasping benchmark, respectively adding an opponent agent and feeding an attacked image as input.
- Implement a differentiable rendering method to replace the original renderer of BulletArm. Use the gradient from the differentiable renderer to produce adversarial inputs.

Adversarial Robustness of Vision Transformer

Jun 2022 - Dec 2022

Research Assistant University of Santa Barbara

- 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%.

Credit Card Fraud Detection

Aug 2021 - Jan 2022

Research Assistant Carnegie Mellon University

- 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.
- The research result is published as *Deep Learning Techniques for Financial Fraud Detection*.

MISCELLANEOUS

- **Scholarship:** Dalian University of Technology Student Scholarship
- **Languages:** English / Mandarin / Cantonese / German
- **Skills:** PyTorch / BulletArm / C++ / Java