

Fengyuan Liu

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Education Background

University of Oxford , Oxford, England	10/2022-9/2023
<ul style="list-style-type: none"> ● M.Sc. Advanced Computer Science ● Topics Covered: Geometric Deep Learning, Quantum Computation, Deep Learning in Healthcare 	
University of Washington , Seattle, WA	09/2017-12/2020
<ul style="list-style-type: none"> ● B.Sc. in Computer Science ● B.Sc. in Applied Computational Mathematical Science (Data Science & Statistics) ● Magna Cum Laude with GPA: 3.95/4.0 (around top 0.5%) and Dean's List: 10/10 full quarters ● Topics Covered: ML, DL, RL, NLP, Stochastic Process, Cryptography 	

Publications

- [1] **OpenFE: Automated Feature Generation beyond Expert-level Performance**
 Tianping Zhang, Zheyu Zhang, Zhiyuan Fan, Haoyan Luo, **Fengyuan Liu**, Qian Liu, Wei Cao, Jian Li
International Conference on Machine Learning (ICML), 2023
- [2] **An Image is worth 1000 lies: Adversarial Transferability Across Prompts on Vision-Language Models**
 Haochen Luo*, **Fengyuan Liu***, Jindong Gu, Philip Torr
International Conference on Learning Representations (ICLR), 2024 (under review)
- [3] **DrugGPT: A Knowledge-Grounded Collaborative Large Language Model for Faithful and Evidence-based Drug Analysis**
 Hongjian Zhou*, Fenglin Liu*, Wenjun Zhang, Guowei Huang, Lei Clifton, David Eyre, Haochen Luo, **Fengyuan Liu**, Kim Branson, Patrick Schwab, Xian Wu, Yefeng Zheng, Anshul Thakur, and David A. Clifton
Nature Biomedical Engineering, 2024 (under review)

Ongoing

- [4] **Few-shot Model-specific Generated Image Detection**
Fengyuan Liu, Haochen Luo, Jindong Gu, Philip Torr

Research Experience

Department of Engineering Science, University of Oxford	Oxford, United Kingdom
<i>Research Intern, TVG, under the supervision of Prof. Philip Torr and Dr. Jindong Gu</i>	05/2023–present
Few-shot Model-specific Generated Image Detection	
<ul style="list-style-type: none"> ● Introduce a seminal investigation into ascertaining the provenance of images generated by specific models; ● Propose a novel technological solution that adds to the burgeoning toolkit for addressing intellectual property concerns in the domain of generative models ● An enhanced algorithmic approach is presented to augment the performance and reliability of the detection model ● A comprehensive dataset is provided, encompassing 283,528 images, inclusive of synthetic images produced by six distinct generative models. [4] 	

An Image is worth 1000 lies

- Introduce cross-prompt adversarial transferability, an important perspective of adversarial transferability, contributing to the existing body of knowledge on VLMs' vulnerabilities.
- Propose a novel algorithm Cross-Prompt Attack (CroPA), designed to enhance cross-prompt adversarial transferability.
- Extensive experiments are conducted to verify the effectiveness of our approach on various VLMs and tasks. Moreover, we provide further analysis to understand our approach. [2]

Institute for Interdisciplinary Information Sciences, Tsinghua University

Beijing, China

Research Intern, ADL Group, under the supervision of Prof. Jian Li

05/2022–10/2022

Automatic Feature Generation

- Used GBDT to design a model called OpenFE to quickly and accurately measure the validity of new features
- Reproduced AutoCross, AutoFeat, SAFE and FCTree methods and compared them with OpenFE
- Did experiments and compared the prediction results with various kinds of databases [1]

Smart beta based on multi-factor models

- Pre-processed raw factors in the tabular form about all stocks listed on the Shanghai and Shenzhen stock markets from 2017 to present
- Dealt with factors by filtering stocks, excluding extreme values, filling null values, doing industry neutral, and standardizing.
- Mainly employed Lightgbm to train and compare the prediction results with different labels (pct1, pct2, or pct5) with various factors combination
- Wrote a script to run once per day to forecast and prepare for practical application

Industry Experience

Morgan Stanley

Part-time Assistant (PTA) of the Investment Analysis Project

01/2020-02/2020

- Analyzed the financial data in the annual and semi-annual reports of ION Geophysical Corporation
- Applied the Altman Z Score and SWOT model to analyze the basic situation, bankruptcy probability and acquisition risks & opportunities of the company

China Telecom Co., Ltd

Nantong, China

Intern at the IT Department

06/2018-09/2018

- Familiarized with the channel-based system positioning, business-based system positioning and customer-based system positioning of the BSS system
- Collected, analyzed and reported customer information through development tools including SQL language and Microsoft Visual Studio

Leadership & Volunteer Experience

SEA Academy

Honor Scholar of Mathematical Studies & Computer Science department

09/2022-09/2023

- Guided more teenagers to launch research, help them explore their interests and improve the society.

Framework Media Organization

Post-production Officer

05/2018-10/2019

- Worked in teams to produce videos and edited pictures using Premiere Pro, After Effect, and Photoshop

Society of Women Engineers

Member

04/2018-10/2019

- Promoted the diversification of scientific and technological talents, especially women in high-tech fields

Skills & Hobbies

Professional Qualification:

CFA Exam Level I (August 2021): Pass

Computer Skills:

Java, Python, C#, SQL, Java Script, MATLAB, R, LaTeX

Hobbies:

Piano, Swimming, Ancient Chinese Philosophy, Jeet Kune Do