YUCHI LIU

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Education

Doctor of Philosophy, Australian National University   **Mar 2021 – Now**
College of Engineering, Computing and Cybernetics, Supervisor: Prof. Liang Zheng

Master of Philosophy, Australian National University   **Mar 2019 – Mar 2021**
College of Engineering and Computer Science, Supervisor: Prof. Liang Zheng

Bachelor of Software Engineering (Honours), Australian National University   **Mar 2017 – Dec 2018**
College of Engineering and Computer Science, Supervisor: Prof. Tom Gedeon

Bachelor of Software Engineering, Chongqing University   **Sep 2014 – Jun 2016**
College of Software Engineering

Work Experience

Sony AI, PPML Group   *Research intern*   **July 2024 – Oct 2024**
↪ Full time, Supervisor: Dr. Lingjuan Lyu   *Tokyo*
• Research Topic: Agent-Based Model Selection

Baidu, Vision Technology Group   *Research intern*   **July 2022 – Jun 2023**
↪ Full time, Supervisor: Dr. Yifan Sun   *Beijing*
• Research Topic: Model Risk Estimation

Microsoft Research Asia, Multimedia Group   *Research intern*   **Feb 2022 – July 2022**
↪ Full time, Supervisor: Dr. Jinglu Wang   *Beijing*
• Research Topic: Visual Object Segmentation

JD.com, AI Lab   *Algorithm intern*   **Aug 2019 – Mar 2020**
↪ Full time, Supervisor: Dr. Hailin Shi   *Beijing*
• Research Topic: Face Recognition

CloudWalk Technology, Computer Vision Lab   *Algorithm intern, full time*   **Nov 2017 – Feb 2018**
↪ Full time   *Chongqing*
• Research Topic: Model Pruning

Papers

[1] **Yuchi Liu**, Jaskirat Singh, Gaowen Liu, Ali Payani, Liang Zheng, Towards Hierarchical Multi-Agent Workflows for Zero-Shot Prompt Optimization, *ICLR 2025 Workshop on Reasoning and Planning for LLMs*, 2025.

[2] **Yuchi Liu**, Yifan Sun, Jingdong Wang, Liang Zheng. Assessing Model Generalization in Vicinity. *arXiv*, 2024.

[3] **Yuchi Liu**, Lei Wang, Yuli Zou, James Zou, Liang Zheng. Optimizing Calibration by Gaining Aware of Prediction Correctness, *arXiv*, 2024.

[4] **Liu, Yuchi**, Zhongdao Wang, Xiangxin Zhou, and Liang Zheng. A study of using synthetic data for effective association knowledge learning. **MIR**, 20(2):194–206, 2023.

[5] **Liu, Yuchi**, Zhongdao Wang, Tom Gedeon, and Liang Zheng. How to synthesize a large-scale and trainable micro-expression dataset? In **ECCV**, pages 38–55. Springer, 2022.

[6] **Liu, Yuchi**, Hailin Shi, Hang Du, Rui Zhu, Jun Wang, Liang Zheng, and Tao Mei. Boosting semi-supervised face recognition with noise robustness. **TCSVT**, 32(2):778–787, 2021

[7] Hang Du, Hailin Shi, **Yuchi Liu**, Jun Wang, Zhen Lei, Dan Zeng, and Tao Mei. (2020). Semi-siamese training for shallow face learning. In **ECCV** Springer, 2020.

[8] **Yuchi Liu**, Heming Du, Liang Zheng, and Tom Gedeon. A neural micro-expression recognizer. In **FG**, pages 1–4. IEEE, 2019.

[9] **Yuchi Liu**, Yue Yao, Zhengjie Wang, Josephine Plested, and Tom Gedeon. Generalized alignment for multimodal physiological signal learning. In **IJCNN**, pages 1–10. IEEE, 2019.

[10] Yue Yao, Josephine Plested, Tom Gedeon, **Yuchi Liu**, and Zhengjie Wang. Improved techniques for building eeg feature filters. In **IJCNN**, pages 1–6. IEEE, 2019

Awards

1st place of the recognition challenge of the Second Facial Micro-expression Grand Challenge (MEGC2019). **2019**

The Scholarship for Outstanding Students, Chongqing University. **2015**

Projects

Speed Up Diffusion Models *Manager: Prof. Liang Zheng* **Jun 2025 – Now**
• A training-free method to speed up image generation inference by more than X times for diffusion models.

Vision Language Model as Detection Agency *Manager: Dr. Lingjuan Lyu* **July 2024 – Oct 2023**
• Post-train vision–language models to act as an agent that can automatically invoke the appropriate detectors and boost detection performance in complex environments.

Unsupervised Model Risk Estimation *Manager: Dr. Yifan Sun* **Aug 2022 – Aug 2023**
• Ranking models based on their estimated risks with respect to out-of-distribution data.

Visual Object Segmentation *Manager: Dr. Jinglu Wang* **Feb 2022 – Aug 2022**
• Investigating the memory management challenge in the semi-supervised visual object segmentation task.

Synthetic Data for Multi-Object Tracking *Supervisor: Prof. Liang Zheng* **Aug 2020 – Nov 2021**
• Building a engine to synthesis multi-object tracking data with controllable factors.
• Analysing and understanding the impact factors for multi-object tracking based qualitative analysis.

Fine-grained Personal Re-identification *Supervisor: Prof. Liang Zheng* **Sep 2020 – Oct 2021**
• Penetrating from the face recognition system to the personal re-identification system.

Semi-supervised Face Recognition *Manager: Dr. Hailin Shi* **Aug 2019 – Mar 2020**
• Enhancing the model's robustness against noisy pseudo-labels in semi-supervised face recognition.

Improve Micro-expression Recognition by Synthetic Data *Supervisor: Prof. Liang Zheng* **Feb 2019 – Mar 2022**
• Synthesizing a large-scale micro-expression recognition dataset by investigating the effective components that constitute micro-expressions.
• Investigating the computational properties of micro-expression recognition.

Semantic Alignment of Physiological Signals *Supervisor: Prof. Tom Gedeon* **Feb 2018 – Nov 2018**
• Individual Honours Project for a Bachelor's Degree.
• Semantically aligning sub-elements from different physiological signals in the same feature space.

Pants

Multi-network model training method, image annotation method and face image recognition method. **2020**

Training method and device of machine learning model, face recognition method and device. **2020**

Skills

Programming	Python, C++, C#, Java, Database, Linux, Unity
Research	Machine learning , deep learning, data processing & analysis, and academic writing
Languages	Chinese, English
Sports	Fitness, Swimming

Referees

Prof. Liang Zheng, Australian National University
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Prof. Tom Gedeon, Curtin University
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Location: New Technologies Building, Room 329
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Dr. Lei Wang, Griffith University
Eamil: l.wang4@griffith.edu.au
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