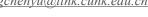
# Fangchen Yu

Ph.D. Candidate







### **EDUCATION**

The Chinese University of Hong Kong, Shenzhen (CUHK-SZ)  Ph.D. Candidate in Computer and Information Engineering (GPA: 3.82/4.00)  Supervisors: Prof. Wenye Li, Prof. Jianfeng Mao	Sep. 2020 - Present
Mohamed Bin Zayed University of Artificial Intelligence (MBZUAI)  Visiting Student; Supervisor: Prof. Qiang Sun	Oct. 2024 - Apr. 2025
University of Chinese Academy of Sciences (UCAS)  Bachelor Degree in Physics (GPA: 3.61/4.00)	Sep. 2016 - Jul. 2020
University of California, Davis (UCD)  Exchange Student (GPA: 3.77/4.00)	Aug. 2019 - Dec. 2019

### PROFESSIONAL EXPERIENCE

Shenzhen Research Institute of Big Data, Shenzhen, China	Sep. 2020 - Aug. 2024
Graduate Research Assistant, Supervisors: Prof. Wenye Li, Prof. Yicheng Zeng	
Vivo AI Lab, Shenzhen, China	Mar. 2023 - Jul. 2023

Research Intern, Area: Visual Understanding and Generation

### RESEARCH INTERESTS

Statistical Machine Learning, Optimization, Optimal Transport, Generative Model.

### RESEARCH TOPICS

- Efficient Similarity and Distance Learning for Incomplete Data (Previous Work)
   Optimize similarity matrices for offline and online incomplete data (Published in NeurIPS, WWW, and UAI)
   Estimate distance matrices for incomplete data in similarity search tasks (Published in AAAI, ECAI, and ECML)
- Optimization and Generalization of Wasserstein Distance (Ongoing Work)
   Develop an accurate tree-Wasserstein distance for approximating the 1-Wasserstein distance (Accepted in ICML)
   Design a novel Wasserstein distance for unbalanced point clouds
- Optimal Transport for Visual Generative Models (Future Work)
   Apply optimal transport to flow matching and diffusion models
   Investigate optimal transport techniques for video generation and multi-modal learning

# SELECTED PUBLICATIONS

- Efficient Similarity Learning for Incomplete Data
  - 1. A Theory-Driven Approach to Inner Product Matrix Estimation for Incomplete Data: An Eigenvalue Perspective Fangchen Yu, Yicheng Zeng, Jianfeng Mao, Wenye Li
    International World Wide Web Conference (WWW), 2025. [Github]
  - 2. Boosting Spectral Clustering on Incomplete Data via Kernel Correction and Affinity Learning NeurIPS-2023

    Fangchen Yu, Runze Zhao, Zhan Shi, Yiwen Lu, Jicong Fan, Yicheng Zeng, Jianfeng Mao, Wenye Li

    37th Conference on Neural Information Processing Systems (NeurIPS), 2023. [Github]
  - 3. Online Estimation of Similarity Matrices with Incomplete Data Fangchen Yu, Yicheng Zeng, Jianfeng Mao, Wenye Li

**UAI-2023** 

39th Conference on Uncertainty in Artificial Intelligence (UAI), 2023. [Github]

#### Robust Distance Learning for Incomplete Data

#### 4. Highly-Efficient Robinson-Foulds Distance Estimation with Matrix Correction

**ECAI-2023** 

Fangchen Yu, Rui Bao, Jianfeng Mao, Wenye Li

26th European Conference on Artificial Intelligence (ECAI), 2023. [Github]

#### 5. Metric Nearness Made Practical

**AAAI-2023** 

Wenye Li, Fangchen Yu, Zichen Ma

37th AAAI Conference on Artificial Intelligence (AAAI), 2023. [Github]

#### 6. Calibrating Distance Metrics Under Uncertainty

**ECML-2022** 

Wenye Li, Fangchen Yu

Joint European Conference on Machine Learning and Knowledge Discovery in Databases (ECML), 2022.

#### Optimization in Computer Vision and Natural Language Processing

7. From Incompleteness to Unity: A Framework for Multi-view Clustering with Missing Values

Fangchen Yu, Zhan Shi, Yuqi Ma, Jianfeng Mao, Wenye Li.

International Conference on Neural Information Processing (ICONIP), 2023.

#### 8. DocReal: Robust Document Dewarping of Real-Life Images via Attention-Enhanced Control Point Prediction

Fangchen Yu, Yina Xie, Lei Wu, Yafei Wen, Guozhi Wang, Shuai Ren, Xiaoxin Chen, Jianfeng Mao, Wenye Li

IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2024. [Github] WACV-2024

#### 9. UltraTWD: Optimizing Ultrametric Trees for Tree-Wasserstein Distance

**ICML-2025** 

Fangchen Yu, Yanzhen Chen, Jiaxing Wei, Jianfeng Mao, Wenye Li, Qiang Sun.

42nd International Conference on Machine Learning (ICML), 2025.

## HONORS AND AWARDS

PhD Fellowship at Shenzhen Research Institute of Big Data	2020 - 2024
Class I Outstanding Teaching Assistant Award at The Chinese University of Hong Kong, Shenzhen	Oct. 2022
Class II Outstanding Teaching Assistant Award at The Chinese University of Hong Kong, Shenzhen	Jul. 2021
Class III Scholarship at University of Chinese Academy of Sciences	Nov. 2019
Merit Student at University of Chinese Academy of Sciences	Dec. 2017

### ACADEMIC SERVICE

Conference Reviewer: ICML 2025, ICLR 2025, NeurIPS 2025/2024, WWW 2025, AAAI 2025/2024, IJCAI 2025/2024.

# TEACHING ASSISTANT (IN ENGLISH)

MAT3007 Optimization	Summer, 2024
DDA4210 Advanced Machine Learning	Spring & Fall, 2023
MAT3300 Mathematical Modeling	Fall, 2022
STA3010 Regression Analysis	Spring, 2022
MAT4003 Number Theory	Fall, 2021
MAT4004 Graph Theory	Spring, 2021
MAT3280 Probability Theory	Fall, 2020

#### SKILLS

ProgrammingPython (PyTorch, NumPy, Pandas, Sklearn), Linux, Git, MATLAB, LaTeXLanguageFluent in English (TOEFL, CET-6), Mandarin

# REFERENCES

Prof. Wenye Li	<b>Prof. Qiang Sun</b>	<b>Prof. Yicheng Zeng</b>
Chinese University of Hong Kong, Shenzhen	University of Toronto	Sun Yat-sen University
wyli@cuhk.edu.cn	qiang.sun@utoronto.ca	zengyicheng@mail.sysu.edu.cn