

# YUXIANG LU

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🔗 <https://scholar.google.com/citations?user=7m-TOp8AAAAJ&hl=en>

## 🎓 EDUCATIONS

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**Shanghai Jiao Tong University**, Shanghai, China 2022.9 – 2025.3 (Expected)

*Candidate for Master* in Electronic and Information Engineering, CSE Department

Advisor: Prof. Hongtao Lu @ BCMI Lab

GPA: 3.96/4.0 Rank: 2/117

**Shanghai Jiao Tong University**, Shanghai, China 2018.9 – 2022.6

*B.Eng.* in Computer Science and Technology, Zhiyuan Honors Program of Engineering

GPA: 3.89/4.3 Score: 90.43/100 Rank: 15/147

## 🔍 RESEARCH INTERESTS

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Computer Vision; Multi-Task Learning; Representation Learning; Federated Learning

## 🔍 RESEARCH EXPERIENCES

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**Multi-Task Multi-teacher Adaptive Distillation** 2024.6 – Now

Advisor: Prof. Yuxiong Wang @ University of Illinois at Urbana-Champaign

Explored representation bias of different vision foundation models on multiple downstream vision tasks when freezing or fine-tuning backbones. Amalgamated multiple foundation models with knowledge distillation and Mixture-of-Experts, leveraging the suitable bias with regard to input and task type.

**Federated Multi-Task Learning** 2023.9 – Now

Advisor: Prof. Hongtao Lu and Prof. Yue Ding @ SJTU

Introduced a novel setting termed Hetero-Client Federated Multi-Task Learning, significantly broadening the applicability of FMTL to include a wider variety of clients, tasks, and data situations. Established a mathematical connection between the optimization processes of MTL and FL. Also developed experimental baselines and benchmarks for FMTL across various FL scenarios.

**Multi-Task Learning for Dense Prediction** 2022.1 – Now

Advisor: Prof. Hongtao Lu and Prof. Yue Ding @ SJTU

Proposed lightweight multi-task models by incorporating a task-conditional architecture with parameter-efficient fine-tuning mechanisms, including prompt tuning and adapters. Demonstrated superior outcomes compared to prior methods on performance and parameter efficiency. Collaborated on exploring methodologies on cross-task interaction, as well as applications in medical image processing, recommendation system, and image matting.

## 📖 PUBLICATIONS

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1. **FedHCA<sup>2</sup>: Towards Hetero-Client Federated Multi-Task Learning**

Yuxiang Lu\*, Suizhi Huang\*, Yuwen Yang, Shalayiding Sirejiding, Yue Ding, Hongtao Lu  
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2024

2. **Prompt Guided Transformer for Multi-Task Dense Prediction**

Yuxiang Lu, Shalayiding Sirejiding, Yue Ding, Chunlin Wang, Hongtao Lu  
IEEE Transactions on Multimedia (TMM) 2024

3. **Task Indicating Transformer for Task-conditional Dense Predictions**

Yuxiang Lu, Shalayiding Sirejiding, Yue Ding, Bayram Bayramli, Suizhi Huang, Hongtao Lu  
IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) 2024, *Oral*

4. **BARTENDER: A Simple Baseline Model for Task-level Heterogeneous Federated Learning**  
Yuwen Yang\*, **Yuxiang Lu\***, Suizhi Huang, Shalayiding Sirejiding, Chang Liu, Muyang Yi, Zhaozhi Xie, Yue Ding, Hongtao Lu  
IEEE International Conference on Multimedia and Expo (ICME) 2024
5. **Task-Interaction-Free Multi-Task Learning with Efficient Hierarchical Feature Representation**  
Shalayiding Sirejiding, Bayram Bayramli, **Yuxiang Lu**, Yuwen Yang, Tamam Alsarhan, Hongtao Lu, Yue Ding  
ACM Multimedia (ACM MM) 2024
6. **Federated Multi-Task Learning on Non-IID Data Silos: An Experimental Study**  
Yuwen Yang, **Yuxiang Lu**, Suizhi Huang, Shalayiding Sirejiding, Hongtao Lu, Yue Ding  
International Conference on Multimedia Retrieval (ICMR) 2024
7. **Towards Mixture of Task-Intensive Experts for Multi-task Recommendation**  
Xun Cai, **Yuxiang Lu**, Hongtao Lu, Yue Ding  
International Conference on Database Systems for Advanced Applications (DASFAA) 2024
8. **Adaptive Task-Wise Message Passing for Multi-Task Learning: A Spatial Interaction Perspective**  
Shalayiding Sirejiding, Bayram Bayramli, **Yuxiang Lu**, Suizhi Huang, Hongtao Lu, Yue Ding  
IEEE Transactions on Circuits and Systems for Video Technology (TCSVT) 2024
9. **TFUT: Task Fusion Upward Transformer Model for Multi-Task Learning on Dense Prediction**  
Zewei Xin, Shalayiding Sirejiding, **Yuxiang Lu**, Yue Ding, Chunlin Wang, Tamam Alsarhan, Hongtao Lu  
Computer Vision and Image Understanding (CVIU) 2024
10. **YOLO-MED : Multi-Task Interaction Network for Biomedical Images**  
Suizhi Huang, Shalayiding Sirejiding, **Yuxiang Lu**, Yue Ding, Leheng Liu, Hui Zhou, Hongtao Lu  
IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) 2024, *Oral*
11. **Scale-Aware Task Message Transferring For Multi-Task Learning**  
Shalayiding Sirejiding, **Yuxiang Lu**, Hongtao Lu, Yue Ding  
IEEE International Conference on Multimedia and Expo (ICME) 2023, *Oral*

## ♡ HONORS AND AWARDS

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Huawei Scholarship	2024.01
Outstanding Graduate of Shanghai Jiao Tong University	2022.06
Outstanding Student of Shanghai Jiao Tong University	2021.10
Wish Scholarship	2021.06
Huawei Scholarship	2021.01
Zhiyuan Honors Scholarship	2018-2021
Shanghai Jiao Tong University School Scholarship	2019-2021

## 👥 SERVICES

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Reviewer: ACM MM 2024, ICME 2024, IEEE TMM, IEEE TCSVT  
TA, Image Processing and Machine Vision, SJTU 2023.09-2024.01

## ⚙️ SKILLS

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**Programming:** Python, C/C++  
**Development:** PyTorch, OpenCV, Git  
**Platform:** Linux, Windows  
**Server Management:** Docker, Proxmox, TreuNAS  
**Language:** Mandarin (Native), English (Fluent, TOEFL 110)  
**Document Writing:** L<sup>A</sup>T<sub>E</sub>X, Markdown