Suizhi Huang

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https://jeandiable.github.io/

https://scholar.google.com/citations?user=Bg9FHewAAAAJ

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Education

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

Master Candidate in Electronic Information
Supervisor: Prof. Hongtao Lu @ BCMI Lab, Department of Computer Science GPA: 3.83/4.0

National University of Singapore, Singapore 2024.8 – 2024.11

Visiting Student, Electrical and Computing Engineering
Supervisor: Prof. Xinchao Wang @ LV Lab

Shanghai Jiao Tong University, Shanghai, China 2018.9 – 2022.6

Bachelor of Engineering in Information Engineering
Supervisor: Prof. Hongtao Lu @ BCMI Lab, Department of Computer Science Score: 89.6/100
Main cources: C Programming and Algorithm Analysis, Data Structure, Database System Concepts, Computer Organization and Architecture, Computer Networks, Information and Coding, Machine Learning
Bachelor of Arts in French

Selected Research Experiences

Federated Multi-Task Learning 2023.9 – Now

Keywords: Multi-Task Learning, Personalized Federated Learning, Hetero-Clients
We introduced a new concept called Hetero-Client Federated Multi-Task Learning, expanding the scope of FMTL to encompass a diverse range of clients, tasks, and data scenarios. We established a mathematical link between the optimization processes of Multi-Task Learning (MTL) and Federated Learning (FL). Additionally, we created experimental benchmarks for FMTL in different FL settings.

Few-shot Implicit Function Generation 2024.2 – Now

Keywords: Few-shot Generation, Weight Space Learning, Equivariant Architecture
Implicit Neural Representations (INRs) effectively model continuous signals, but generating diverse INR weights is limited by data scarcity. We propose Few-shot Implicit Function Generation to create varied yet consistent INR weights from minimal examples. Our framework leverages weight permutations' equivariance properties to transform functionally similar networks, enabling diverse generation through equivariant latent space projection.

Continual Learning with Adaptive Model Merging 2024.6 – 2024.11

Keywords: Continual Learning, Cognitive-inspired AI, Catastrophic Forgetting
Continual Learning (CL) strives to learn incrementally across tasks while mitigating catastrophic forgetting. A key challenge in CL is balancing stability (retaining prior knowledge) and plasticity (learning new tasks). We explore the potential of model merging to enhance the stability-plasticity trade-off, providing theoretical insights that underscore its benefits.

Multi-Task Learning for Biomedical Images 2023.4 – 2024.4

Keywords: Multi-Task Learning, Object Detection, Semantic Segmentation, Biomedical Images
Object detection and semantic segmentation are vital in biomedical image analysis. To address challenges in balancing accuracy and speed in multi-task learning, we introduce YOLO-Med, an efficient multi-task network with multi-scale feature extraction and task-specific decoders.

Selected Publications

1. **FedHCA^2: 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**, ***co-first author***
2. **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**
3. **Few-shot Implicit Function Generation**
   Suizhi Huang, Xingyi Yang, Hongtao Lu, Xinchao Wang
   IEEE/CVF Conference on Computer Vision and Pattern Recognition **(CVPR) 2025**, *under review with score 4,4,4,4 over 5*
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. **Federated Multi-Task Learning on Non-IID Data Silos: An Experimental Study**
   Yuwen Yang, Yuxiang Lu, **Suizhi Huang**, Shalayiding Sirejiding, Hongtao Lu, Yue Ding
   ACM SIGMM International Conference on Multimedia Retrieval **(ICMR) 2024**
6. **UNIDEAL: Curriculum Knowledge Distillation Federated Learning**
   Yuwen Yang, Chang Liu, Xun Cai, **Suizhi Huang**, Hongtao Lu, Yue Ding
   IEEE International Conference on Acoustics, Speech and Signal Processing **(ICASSP) 2024 oral**
7. **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**
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. **Towards Personalized Federated Multi-Scenario Multi-Task Recommendation**
   Yue Ding, Yanbiao Ji, Xun Cai, Xin Xin, Yuxiang Lu, **Suizhi Huang**, Chang Liu, Xiaofeng Gao, Tsuyoshi Murata, Hongtao Lu
   ACM International Conference on Web Search and Data Mining**(WSDM) 2025**

Honors and Awards

Outstanding Graduate of Shanghai (top 5% in Shanghai)	**2024.12**
National Scholarship of Graduate (top 1% national-wide)	**2024.11**
First-Class Master's Academic Scholarship	2022-2024
Huatai Securities Science and Technology Scholarship	2024.1
Outstanding Graduate of SJTU(top 10%)	2022.6
Outstanding Student of SJTU	2021.10 & 2019.10
Shanghai Jiao Tong University Scholarship	2020 & 2021

Skills

Programming Languages: Python, C/C++
Development: PyTorch, OpenCV, Git, CUDA
English Proficiency: TOEFL iBT:111, CET6: 564
French Proficiency: DELF B2