Ms. Tongtong Fang | Curriculum Vitae

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Education

The University of Tokyo **Japan**

Ph.D. candidate in Machine Learning, supervised by Prof. Masashi Sugiyama *2020*.09-2024.09

- Research interests: transfer learning, robust deep learning, representation learning
- Research assistant (RA) on: *Towards robust deep learning under distribution shift: an importance weighting approach*

KTH Royal Institute of Technology **Sweden**

M.S., Information & Communication Technology 2017.09-2019.12

- Master thesis: *Learning from noisy labels by importance reweighting: a deep learning approach*

University of Nice Sophia Antipolis **France**

M.S., Computer Science 2016.09-2017.07

- Core courses: Data science, Data analytics, Algorithmic and applications, Networked and large-scale systems

Southwest University **China**

B.S., Statistics 2012.09-2016.06

- Bachelor thesis: *Analysis of the household livelihood strategy in Cambodia measured by SVM and Decision Tree*

Toulouse III University **France**

Exchange study and research internship, funded by Techno II - Erasmus Mundus Action 2014.09-2015.06

Research Experiences

Towards Robust Deep Learning under Distribution Shift: An Importance Weighting Approach

Research Fellow (DC2), The Japan Society for the Promotion of Science (JSPS), Japan 2023.04-2025.04

- Propose a generalized framework of importance weighting for deep learning under distribution shift.

Rethinking Importance Weighting for Deep Learning under Distribution shift

Research Intern, RIKEN Center for Advanced Intelligence Project (AIP), Japan 2018.11-2019.08

- Found importance weighting suffers from a circular dependency problem conceptually and theoretically.
- Proposed a novel *dynamic importance weighting* method and experimentally demonstrated its effectiveness.

Multimodal Deep Neural Network Fusion for Robust Human-Robot Collaboration

Research Assistant (RA), Human-Robot Collaboration Laboratory, KTH, Sweden 2017.10-2018.08

- Designed a robust multimodal robot control architecture comprising speech, hand and body motion recognition.
- Achieved a test accuracy of 99.58%, implemented by *CNN, stacked LSTM and MLP* via *transfer learning*.

Publications

- **T. Fang**, N. Lu, G. Niu, M. Sugiyama, "Generalizing Importance Weighting to A Universal Solver for Distribution Shift Problems". In *Advances in Neural Information Processing Systems 36 (NeurIPS 2023),* to appear. (This paper was selected for spotlight presentation; spotlights : acceptance : submissions = 378 : 3218 : 12343).
- **T. Fang***, N. Lu*, G. Niu, M. Sugiyama, "Rethinking Importance Weighting for Deep Learning under Distribution shift". In *Advances in Neural Information Processing Systems 33 (NeurIPS 2020)*, pp. 11996--12007, Online, Dec 6--12, 2020. (This paper was selected for spotlight presentation; spotlights : acceptance : submissions = 280 : 1900 : 9454, * equal contributions).
- N. Lu, T. Zhang, **T. Fang**, T. Teshima, M. Sugiyama, "Rethinking Importance Weighting for Transfer Learning". Federated and Transfer Learning. Cham: Springer International Publishing, 2022. 185-231.
- H. Liu, **T. Fang**, T. Zhou, L. Wang, "Towards Robust Human-Robot Collaborative Manufacturing: Multimodal Fusion", in *IEEE Access,* vol. 6, pp. 74762-74771, 2018.
- H. Liu, **T. Fang**, T. Zhou, Y. Wang, L. Wang, "Deep Learning-based Multimodal Control Interface for Human-Robot Collaboration", *Procedia CIRP of the 51th Conference on Manufacturing Systems*, 72 (2018)3–8.

Talks & Workshops

- *Talk* at *International Workshop on Weakly Supervised Learning 2023*.
- *Poster* presentation in *Information-Based Induction Sciences and Machine Learning (IBIS) 2023*.
- *Long-talk (50-min)* at *NVIDIA GPU Technology Conference (GTC) 2021*.
- *Poster* presentation in *Information-Based Induction Sciences and Machine Learning (IBIS) 2020*.
- *Poster* presentation (with travel award) in *Asian Conference on Machine Learning (ACML) 2019 Workshop*.

Services

- Reviewers for: *ICML, NeurIPS, ICLR, AISTATS, ACML, Machine Learning Journal, Transactions on Machine Learning Research, Neural Networks, Neural Processing Letters*, and workshops.