

Fangfu Liu

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EDUCATION

Department of Electronic Engineering, Tsinghua University, Beijing, China

Aug 2019 - Present

Overall GPA: 3.89/4.0 **Ranking:** top 10% in 280+ students

Among the **55** required courses I have taken so far, **48** have received a grade of **4.0**, with most of them being fundamental courses in mathematics and core courses in electronic engineering.

Advisor: Yueqi Duan

PUBLICATIONS

CausalForensics: Deepfake Detection with Contrastive Causal Learning.

Haixu Song, **Fangfu Liu**, Xiaoke Yang, Jiwen Lu, Jie Zhou, Yueqi Duan.

Submitted.

Discovering Dynamic Causal Space for DAG Structure Learning.

Fangfu Liu, Wenchang Ma, An Zhang, Xiang Wang, Yueqi Duan, Tat-Seng Chua.

Submitted.

Semantic Ray: Learning a Generalizable Semantic Field with Cross-Reprojection Attention. [PDF](#)

Fangfu Liu, Chubin Zhang, Yu Zheng, Yueqi Duan.

Accepted to CVPR 2023.

Boosting Differentiable Causal Discovery via Adaptive Sample Reweighting. [PDF](#)

An Zhang, **Fangfu Liu**, Wenchang Ma, Zhibo Cai, Xiang Wang, Tat-Seng Chua.

Accepted to ICLR 2023.

RESEARCH EXPERIENCE

Topic: Generalizable Semantic NeRF

Aug 2022 - Dec 2022

Instructor: Prof. Yueqi Duan, Tsinghua University

Goal: Aim to learn a semantic radiance field from multiple scenes that is accurate, efficient, and generalizable.

- We propose a neural semantic representation called Semantic-Ray to build a generalizable semantic field, which is able to learn from multiple scenes and directly infer semantics on novel viewpoints across novel scenes. We also design a cross-reprojection module to fully exploit semantic information from multiple reprojections of rays.
- Extensive experiments on both synthetic and real-world datasets demonstrate the strong generalizability of our S-Ray and the effectiveness of our cross-reprojection attention design.

Topic: Differentiable Causal Discovery

June 2022 - Sept 2022

Instructor: Prof. Tat-Seng Chua, Dr. An Zhang; NexT++, NUS

Goal: Learn causal structure from purely observational data by differentiable score-based optimization.

- We propose ReScore, a simple-yet-effective model-agnostic optimization framework that simultaneously eliminates spurious edge learning and generalizes to heterogeneous data by utilizing learnable adaptive weights.
- We discover a novel optimization scheme for DAG structure learning called CASPER that encodes the graph structure of the structural equation model in a dynamic causal space.

COMPETITION EXPERIENCES

Tsinghua University Innosilicon Program – Smart Car Challenge

Jan 2020 - Feb 2020

- As the team leader, responsible for planning the entire competition program.
- Responsible for software development, such as automatic tracking, ultrasonic obstacle avoidance, etc.

- Rank 6 out of 50+ teams.

Tsinghua University Hardware Design Competition

Aug 2020 - Nov 2020

- Gesture-based quadcopter drone, which entered the Science and Technology Exhibition of Tsinghua University.
- Responsible for software, development of Arduino gesture control system and UAV hardware debugging.
- Rank 3 out of 80+ teams.

The 40th Challenge Cup of Tsinghua University

Dec 2021 - Apr 2022

- In the topic of Task-Oriented Interactive Robot-System with Cross-Modal Collaboration, responsible for trajectory planning of the robot arm and design of the visual system. **Awarded the Third Prize.**
- In another topic of High-Efficiency Bidirectional Frequency Regulation Interactive Exchange Cabinet for Smart Grids, responsible for circuit design of the charging time for bidirectional charging. **Awarded the First Prize.**

SCHOLARSHIP AND HONORS

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|---|-------------------------|
| 1. National Scholarship (Top 1 in 260+ in the 2019-2020 academic year) | <i>2020.10</i> |
| 2. Tsinghua University Comprehensive Excellent Award (Top 5% in 260+) twice | <i>2020.10, 2021.10</i> |
| 3. Tsinghua Science and Technology Innovation Excellence Award | <i>2022.10</i> |
| 4. Four star Bauhinia volunteer of Tsinghua University (Volunteer hours up to 150h) | <i>2021.5</i> |
| 5. Advanced individual award of Tsinghua University | <i>2019.10</i> |
| 6. Tsinghua University Freshman Basketball Championship | <i>2019.10</i> |
| 7. Excellent Admissions Backbone of Tsinghua University | <i>2021.11</i> |
| 8. 100m champion of Tsinghua University Sports Games | <i>2020.3</i> |

LEADERSHIP

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| 1. Counselor of Summer School of Tsinghua University | <i>Jul 2021 - Aug 2021</i> |
| 2. Backbone of Tsinghua University Q&A Workshop | <i>May 2020 - Present</i> |
| 3. Director of Practice Department of Tsinghua University Colledge | <i>May 2021 - Present</i> |
| 4. Organizer of the main venue of the 110 th anniversary celebration of Tsinghua University | <i>Apr 2021 - May 2021</i> |
| 5. Captin of the winter and summer vacation practice detachment three times | <i>Jan 2020, Aug 202, Jan 2021</i> |
| 6. Captin of class basketball team and the main force of basketball team in EE department | <i>Sept 2019 - Sept 2021</i> |

SKILLS

Spécialty: **Go** 5d **Erhu** level 10