LIOU TANG

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EDUCATION

University of Pittsburgh *Sep. 2024 -*
Ph.D. in Information Science; Advised by Dr. James Joshi

University of Pittsburgh *Sep. 2022 - Apr. 2024*
Master of Science in Information Science

Shanghai Jiao Tong University (SJTU) *Sep. 2018 - Jun. 2022*
Bachelor of Engineering in Information Security

RESEARCH

SecPriMU: Towards A Holistic Secure And Privacy-Preserving Machine Unlearning Framework *LERSAIS Lab, University of Pittsburgh* *Jan. 2024 -*
Role: Ph.D. Student Researcher; Advisor: Dr. James Joshi

- Designed a holistic secure and privacy-preserving Machine Unlearning framework that can defend against security attacks (e.g. Backdoor, Data Poisoning) and privacy inference attacks (e.g. Membership Inference, Data Reconstruction) simultaniously.
- Wrote a paper on the taxonomy of Machine Unlearning attacks based on formal methods.

Effectiveness and Efficiency of GNN-based Routing on Software Defined Networks *University of Pittsburgh* *Jan. 2023 - Oct. 2023*
Role: Student Researcher; Advisor: Dr. Prashant Krishnamurthy, Dr. Mai Abdelhakim

- Worked on a GNN-fused Deep Reinforcement Learning agent for Software Defined Network routing optimization with competitive performances.
- Preparing a paper on Machine Learning/Reinforcement Learning methods in SDN routing, discussing the strengths and weaknesses of ML-based approach in networking scenarios. Manuscript accepted by IEEE ICC 2024.

Vehicle Safety Pre-Warning Technology Based on Fused Optical Flow Deep Neural Network *National Eng. Lab on Info Content Analysis, SJTU* *Mar. 2021 - Feb. 2022*
Role: Student Researcher / Team Leader; Advisor: Dr. Tanfeng Sun

- Designed a fused optical flow neural network with PyTorch for real-time detection of barriers, pedestrian, and lanes, and measuered vehicle speed utilizing images from a vehicle-mounted camera.
- Project applied for Outstanding Projects for Shanghai Undergraduate Training Program for Innovation. Patent approved for the fused optical flow neural network model for vehicle safety pre-warning.

PUBLICATIONS

L. Tang, J. Joshi, "SecPriMU: Towards A Holistic Secure and Privacy-Preserving Machine Learning Framework," *in progress*, 2025.

L. Tang, J. Joshi, "Attacking Machine Unlearning, or Attacking *with* Machine Unlearning? A Taxonomy," *in progress*, 2024.

L. Tang, P. Krishnamurthy, M. Abdelhakim, "Is Machine Learning the Best Option for Network Routing," in *International Conference on Communications (ICC)*, 2024, pp. 5425-5430.

ACADEMIA SERVICES

Reviewer for Conferences and Journals
Role: Reviewer

- *2024 IEEE 10th International Conference on Network Softwarization (NetSoft)*

TEACHING ASSISTANT EXPERIENCE

Teaching Assistant for IFSCI 0510 *University of Pittsburgh*
Role: Teaching Assistant; Course Instructor: Dr. Dmitriy Babichenko *Sep. 2024 -*

Teaching Assistant for ECE 1155 *University of Pittsburgh*
Role: Teaching Assistant; Course Instructor: Dr. Mai Abdelhakim *May. 2023 - Aug. 2023*

INTERNSHIP

Software Engineer Intern at Unity Technologies (Shanghai) *Unity Technologies (Shanghai)*

Role: Software Engineer Intern; Manager: Liming Zhang *Jan. 2022 - Aug. 2022*

- Worked at a Unity DOTs-based Cloud Gaming Project, physical simulation and rendering processes are distributed to remote nodes and combined after calculation, drastically improving gaming experience.
- Contributed several features and demos to the project, converted the Hong Kong International Airport simulation project to a distributed rendering-based project.
- Worked with Unity Entity Component System, Netcode, and HDRP features, familiar with Unity DOTs-based development.

SKILLS & HOBBIES

Proficient: C / C++, C#, Python, MATLAB

Hobbies: Reading (2 hrs/day), Comparative Literature, Film and Animation Studies, 20-th Century French Philosophy