Fan Wang

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Rapid-Rich Object Search Lab (ROSE), IGP
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I am a Ph.D. candidate in the Interdisciplinary Graduate Program, specializing in the intersection of Mathematical Science and Computer Science. My research focuses on machine learning and AI security, specifically developing reliable and trustworthy deep learning systems.

Education

Nanyang Technological University, Singapore   2019 – 2024 (expcted)

   Ph.D. in Interdisciplinary Graduate Programme

   Advisor: Prof. Adams Wai-Kin Kong, Co-advisor: Prof. Nicolas Privault

   Thesis: Towards Robust Explainability of Deep Neural Networks against Attribution Attacks

Imperial College London, London, UK   2016 – 2017

   M.Sc. in Statistics

   Advisor: Dr. Ben Calderhead

   Thesis: A Hierarchical Bayesian Model for Predicting Formula One Qualifying Positions

Nanyang Technological University, Singapore   2012 – 2016

   B.Sc. in Mathematical Sciences

   Advisor: Prof. Chua Chek Beng

   Thesis: A Genetic Algorithm Based Multiple Kernel Learning Algorithm

Publication and Preprints

Conference Papers

1. **Wang, Fan**, and Adams Wai-Kin Kong. "A Practical Upper Bound for the Worst-Case Attribution Deviations." In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, pp. 24616-24625. 2023.

2. **Wang, Fan**, and Adams Wai Kin Kong. "Exploiting the Relationship Between Kendall's Rank Correlation and Cosine Similarity for Attribution Protection." Advances in Neural Information Processing Systems 35 (2022): 20580-20591. (**NeurIPS Scholar Award**)

3. Huang, Yi, **Fan Wang**, Adams Wai-Kin Kong, and Kwok-Yan Lam. "New Threats Against Object Detector with Non-local Block." In European Conference on Computer Vision, pp. 481-497. Cham: Springer International Publishing, 2020.

4. Liu, Yanzhu, **Fan Wang**, and Adams Wai Kin Kong. "Probabilistic deep ordinal regression based on gaussian processes." In Proceedings of the IEEE/CVF International Conference on Computer Vision, pp. 5301-5309. 2019.

Preprints

5. **Wang, Fan**, and Adams Wai-Kin Kong. "Certified ℓ_2 Attribution Robustness via Uniformly Smoothed Attributions." Preprint and Under Review. 2023

Work Experience

Energy Research Institute @ NTU, Singapore

    Research Associate   May 2018 – July 2019

    Advisor: Prof. Adams Wai-Kin Kong

    Project: Using machine learning to extract information from sensor and non sensor data for understanding predicting and optimization building performance

Awards and Scholarships

NeurIPS Scholar Award	2022
NTU Research Scholarship	2019 – 2023
MOE PRC Undergraduate Scholarship	2010 to 2016

Academic Service

Reviewer

ICML, 2022 –
NeurIPS, 2021 –
ICLR, 2023 –

Teaching Experience

AI6104 Mathematics for Artificial Intelligence	2021 – 2023
Teaching Assistant, with Prof. Adams Wai-Kin Kong	
CZ3005 Artificial Intelligence	Autumn 2020
Teaching Assistant, with Prof. Bo An	
CZ2100 Probability and Statistics for Computing	2019 – 2020
Teaching Assistant, with Prof. Adams Wai-Kin Kong	
CZ1012 Engineering Mathematics II	2018 – 2021
Teaching Assistant, with Prof. Adams Wai-Kin Kong	