Mr. Wu Zhaoxuan

Position:
Ph.D. Student under
NUS Graduate School Integrative Sciences and Engineering Programme (ISEP) and,
Institute of Data Science (IDS), National University of Singapore (NUS)

Contact: +65 8438 5708
Email: wu.zhaoxuan@u.nus.edu
Office: #05-05, 3 Research Link, Singapore 117602
Website: https://zhaoxuanwu.github.io/

Research Interests

- Collaborative machine learning (e.g., data valuation, federated learning)
- Resource-efficient machine learning (e.g., Bayesian optimization)
- Deep learning & applications

Academic Qualifications

Doctor of Philosophy in Data Science
National University of Singapore. Aug 2020 – Present

- CAP: 5.0 / 5.0
- Thesis Title: Collaborative Machine Learning
- Supervisor: Prof. Bryan Kian Hsiang Low
- Thesis Advisory Committee: Prof. See-Kiong Ng, Prof. Vincent Yan Fu Tan, Prof. Bryan Kian Hsiang Low

Bachelor of Science (Honors) in Data Science & Analytics / Minor in Computer Science
National University of Singapore. Aug 2016 – Jun 2020

- Honors (Highest Distinction), CAP: 4.82 / 5.0
- Thesis Title: Deep Learning for Glaucoma Diagnosis
- Supervisor: Prof. Alexandre Hoang Thiery
- Award: Best Academic Project in Data Science & Analytics Discipline

Scholarships

- Aug 2020 – Present ISEP-IDS Scholarship (Ph.D.)
- Jan 2018 – May 2018 UTown Scholarship – Tin Ka Ping Foundation Scholarship
- Nov 2011 – Nov 2015 Singapore SM1 School-based Scholarship (Secondary & Pre-U)

Honors and Awards

- **Lijen Industrial Development Medal AY2019/20**
  - Being the Honors year student with the ***best academic exercise/project*** in the Data Science and Analytics discipline in the Faculty of Science, NUS
  - In my honors project, I designed a multi-task U-Net architecture for learning three tasks on Optical Coherence Tomography (OCT) images simultaneously
  - Achieved an overall average test accuracy of 91.4% across tasks and further developed an algorithm to reconstruct a more realistic predicted eye structure

- **Faculty of Science Dean's List Recipient for Semester 2 AY2019/20, Semester 1 AY2018/19 and Semester 2 AY2017/18**
    - Awarded to students in the ***top 5 percent*** of the total undergraduate Science cohort
- **NUS Science Diamond Jubilee Student Award 2019**
    - A testimony of excellent academic track records both in NUS and the Student Exchange Program to Northwestern University, IL, USA
- Gold Award in Nanyang Research Program 2014
    - Awarded for the Electrical & Electronic Engineering project on Nanowires Silicon/PEDOT:PSS Hybrid Solar Cells after months of experiments, written report, and oral presentation
- High Distinction in National Economics & Financial Management Competition 2015
- Young Engineers & Scientist (YES) Academic Award Physics 2013
    - Awarded by the Defence Science & Technology Agency of Singapore
- Silver Award in Singapore Junior Physics Olympiad 2012

Publications

* = equal contribution / co-first authorship.

- Zhaoxuan Wu, Yao Shu, and Bryan Kian Hsiang Low (2022). **DAVINZ: Data Valuation using Deep Neural Networks at Initialization**. *In Proceedings of the 39th International Conference on Machine Learning (ICML-22)* [21.9% Acceptance Rate].
- Xinyi Xu*, Zhaoxuan Wu*, Chuan Sheng Foo, and Bryan Kian Hsiang Low (2021). **Validation Free and Replication Robust Volume-based Data Valuation**. *In Advances in Neural Information Processing Systems 34: 35th Annual Conference on Neural Information Processing Systems (NeurIPS'21)* [25.7% Acceptance Rate].
- Quoc Phong Nguyen*, Zhaoxuan Wu*, Bryan Kian Hsiang Low, and Patrick Jaillet (2021). **Trusted-Maximizers Entropy Search for Efficient Bayesian Optimization**. *In Proceedings of the 37th Conference on Uncertainty in Artificial Intelligence (UAI-21)* [26.5% Acceptance Rate].

Teaching Experience

- DSA2102 (Essential Data Analytics Tools: Numerical Computation), NUS. Fall 2020
    - Teaching Assistant
- CS3244 (Machine Learning), NUS. Spring 2021
    - Teaching Assistant for 2 tutorial classes
- CS3244 (Machine Learning), NUS. Spring 2022
    - Teaching Assistant for 1 tutorial class

Professional Service

- Conference reviewer for
    1. International Conference on Machine Learning (ICML), 2022

Employment History

- Research Intern @ NUS Artificial Intelligence Innovation and Commercialization Center. May 2019 – Aug 2019
    - Supervisors: Prof. Ng Teck Khim and Prof. Xu Yin

    - Contributed to the development of Rafiki, an open-source distributed system that offers automated Machine Learning model training, tunning and deployment services
    - Enriched Rafiki's base of supported tasks to Automated Speech Recognition (ASR) and integrated a ready-to-use DeepSpeech model into the Rafiki framework
    - Enable users with minimal background knowledge in AI to train, tune and deploy an ASR application with a Word Error Rate of less than 10%
- Full-Stack Developer Intern @ Insignia Ventures Partners. Jan 2018 – Jul 2018
    - Designed and developed features in the company’s web application under the engineering team, including KPIs, web scraping, securities and third-party application integration, thus improving the user-friendliness of the application and the efficiency of the investment process
- Software Developer Intern @ Pteris Global Limited. Mar 2016 – May 2016
    - Designed and developed VBA programs to generate templates for project costing estimate, manpower costing estimate and procurement list, resulting in a much more reliable automated costing calculation free of human error, and at the same time, increased the productivity by reducing labor hours