

Winston Chen

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RESEARCH INTEREST

I am interested in enabling reliable and interpretable AI-driven decision-making in healthcare, leveraging causal inference and explainable AI. To date, my work has focused on discovering non-additive interactions in deep neural networks and improving treatment effect estimation by explicitly accounting for patient non-compliance.

EDUCATION

- **University of Michigan** 2023 - present
Ph.D. in Computer Science & Engineering Ann Arbor, Michigan
 - Advisor: Jenna Wiens
- **University of Washington** 2018 - 2022
B.S. in Electrical Engineering Seattle, Washington
 - Advisor: William Stafford Noble

PUBLICATIONS & PREPRINTS

C=CONFERENCE, J=JOURNAL, S=IN SUBMISSION

- [C.1] **Winston Chen**, Yifan Jiang, William Stafford Noble, Yang Young Lu, **Error-controlled Interaction Discovery in Deep Neural Networks**, in *NeurIPS 2024 workshop on Interpretable AI: Past, Present and Future*, Dec. 2024.
- [S.1] **Winston Chen**, Trenton Chang, Jenna Wiens, **Heterogeneous Treatment Assignment Effect Estimation Under Non-compliance with Conditional Front-door Adjustment**, Under review.
- [S.2] **Winston Chen**, Yifan Jiang, William Stafford Noble, Yang Young Lu, **Error-controlled Non-additive Interaction Discovery in Machine Learning Models**, Under review.
- [C.2] **Winston Chen**, William Stafford Noble, Yang Young Lu, **DeepROCK: Error-controlled Interaction Detection in Deep Neural Networks**, in *Machine Learning in Computational Biology 2023*, Nov. 2023.

INDUSTRY EXPERIENCE

- **RealNetworks** Sept. 2022 - Sept. 2023
R&D Intern. Mentor: Reza Rassool Seattle, Washington
 - Designed facial recognition-based general encryption algorithm.
 - Developed a mobile app for showcasing the encryption technology.
- **NVIDIA** Jun. 2021 - Sept. 2021
Software Engineering Intern, Mentor: Johnny Israeli Remote
 - Designed and implemented a software log analysis framework for assisting the development of Parabricks genomics data analysis suite.

SERVICES

- **Program Sub-Chair**, Machine Learning for Health Symposium (ML4H) Symposium (2024 - current)
- **Secretary**, Computer Science & Engineering Graduate Student Organization, University of Michigan (2024 - Present)

HONORS AND AWARDS

- **Rackham Graduate Research Fellowship** *Autumn 2023*
University of Michigan
 - Merit-based fellowship covering the first year tuition and stipends of the Ph.D. program.
- **Mary Gates Research Scholarship** *Spring 2021*
University of Washington
 - \$5000 award for excellent undergraduate research in interpretable machine learning.
- **Lawrence & Lucille Frey Endowed ECE Scholarship** *Autumn 2020*
University of Washington
 - \$1000 award for Electrical & Computer Engineering (ECE) student with high academic excellency.
- **Herschel & Caryl Roman Scholarship** *Summer 2020*
University of Washington
 - \$2500 award for undergraduate research in genomics.

TEACHING EXPERIENCE

- **Teaching Assistant, EE 241 (Programming for Signal and Information Processing)** *Spring 2022*
University of Washington
 - Held weekly office hours and lab sessions for around 40 students on Python programming.
- **Teaching Assistant, EE 215 (Fundamentals of Electrical Engineering)** *Winter 2021 & 2022*
University of Washington
 - Held weekly review sessions and graded homework for around 20 students on fundamental circuit analysis.
- **Teaching Assistant, EE 271 (Digital Circuit and System)** *Autumn 2021*
University of Washington
 - Held weekly lab sessions and graded projects for around 40 students on FPGA programming.