Yu-Wei Fan

Contact	Email: yf9172@princeton.edu
Research Interests	Formal verification, hardware security, and automated reasoning.

Education

Princeton University, USA
Ph.D., Electronics and Computer Engineering, 2024 – Present

National Taiwan University, Taiwan
M.S., Electronics Engineering, 2024
Thesis: "Strategy Synthesis and Threshold Quantification in Stochastic Boolean Satisfiability"
Advisor: Prof. Jie-Hong Roland Jiang
Committee: Prof. Hiroshi Unno, Dr. Tony Tan, and Dr. Bow-Yaw Wang

National Taiwan University, Taiwan
B.S., Electrical Engineering, 2022

Research Experiences

2020 – 2024	**Nationa Taiwan University**, Applied Logic and Computation Lab *Research Assistant* Advisor: Prof. Jie-Hong Roland Jiang Researching stochastic Boolean satisfiability (SSAT) solving and its extension Researching reverse engineering of gate-level (arithmetic) circuits
2022 – 2023	**Institute of Information Science, Academia Sinica** *Adjunct Research Assistant* Advisor: Dr. Yu-Fang Chen Applying software testing techniques (concolic testing) on DNN models

Teaching Experiences

Spring 2023, 2024	**Introduction to Electronic Design Automation**, National Taiwan University *Teaching Assistant*
Fall 2022	**Switching Circuits and Logic Design**, National Taiwan University *Teaching Assistant*

Awards and Honors

2024	IEEE Taipei Section Master Thesis Award

2024	Taiwanese Association of Artificial Intelligence Master Thesis Honorable Mention
2023, 2024	Conference Travel Grant, Foundation for the Advancement of Outstanding Scholarship
2023	Conference Travel Grant, National Science and Technology Council
2021	Research Grant for Undergraduate Students, Ministry of Science and Technology

Publications

Conference Papers

Fung Long-Hin, Che Cheng, <u>Yu-Wei Fan</u>, Tony Tan, Jie-Hong Roland Jiang. "2-DQBF Solving and Certification via Property-Directed Reachability Analysis", *Formal Methods in Computer-Aided Design (FMCAD),* 2024. **[Best Paper Award]**

<u>Yu-Wei Fan</u>, Jie-Hong Roland Jiang. "Unifying Decision and Function Queries in Stochastic Boolean Satisfiability", *AAAI Conference on Artificial Intelligence (AAAI),* 2024.

<u>Yu-Wei Fan</u>, Jie-Hong Roland Jiang. "SharpSSAT: A Witness-Generating Stochastic Boolean Satisfiability Solver", *AAAI Conference on Artificial Intelligence (AAAI),* 2023.

Kuo-Wei Ho, Shao-Ting Chung, Tian-Fu Chen, <u>Yu-Wei Fan</u>, Che Cheng, Cheng-Han Liu, Jie-Hong Roland Jiang. "WolFEx: Word-Level Function Extraction and Simplification from Gate-Level Arithmetic Circuits", *International Conference on Computer-Aided Design (ICCAD),* 2023.

Workshop Papers

Kuo-Wei Ho, <u>Yu-Wei Fan</u>, Jie-Hong Roland Jiang, Alan Mishchenko, Robert K. Brayton, Sean A. Weaver. "Recovering Hierarchical Boundaries in a Flat Netlist", *International Workshop on Logic and Synthesis (IWLS),* 2024. **[Best Paper Nomination]**