

Yu-Wei Fan

Contact	Email: yf9172@princeton.edu
Research Interests	Formal verification, hardware security, and automated reasoning.
Education	Princeton University, USA <i>Ph.D., Electronics and Computer Engineering, 2024 – Present</i> Princeton University, USA <i>M.A., Electronics and Computer Engineering, 2024 – Present</i> National Taiwan University, Taiwan <i>M.S., Electronics Engineering, 2024</i> 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 <i>B.S., Electrical Engineering, 2022</i>
Experiences	
2020 – 2024	National Taiwan University, Applied Logic and Computation Lab <i>Research Assistant</i> Advisor: Prof. Jie-Hong Roland Jiang Researching stochastic Boolean satisfiability (SSAT) solving, its extension Researching reverse engineering of gate-level (arithmetic) circuits
2022 – 2023	Institute of Information Science, Academia Sinica <i>Adjunct Research Assistant</i> Advisor: Dr. Yu-Fang Chen Applying software testing techniques (concolic testing) on DNN models
Teaching Experience	
Spring 2023, 2024	Introduction to Electronic Design Automation , National Taiwan University <i>Teaching Assistant</i>
Fall 2022	Switching Circuits and Logic Design , National Taiwan University <i>Teaching Assistant</i>
Awards and Honors	
2023, 2024	Conference Travel Grant, Foundation for the Advancement of Outstanding Scholarship

2023
2021

Conference Travel Grant, National Science and Technology Council
Research Grant for Undergraduate Students, Ministry of Science and Technology

Publications

Conference Papers

Fung Long-Hin, Che Cheng, Yu-Wei Fan, Tony Tan, Jie-Hong Roland Jiang. “2-DQBF Solving and Certification via Property-Directed Reachability Analysis”, *Formal Methods in Computer-Aided Design (FMCAD)*, 2024.

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

Yu-Wei Fan, 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, Yu-Wei Fan, 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, Yu-Wei Fan, 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]**