CHIH-CHENG REX YUAN

hello@rexyuan.com

PUBLICATION

Ensuring Fairness with Transparent Auditing of Quantitative Bias in AI Systems 2024
(to appear) IEEE 2024 Pacific Neighborhood Consortium Annual Conference and Joint Meetings (PNC)

EDUCATION

National Taiwan Normal University 2014 - 2019
B.S. in Computer Science and Information Engineering
FLOLAC Summer School at National Taiwan University 2017, 2018, 2019
CONFESTA Summer School at University of Chinese Academy of Sciences 2018

EXPERIENCE

Institute of Information Science, Academia Sinica Taipei
Research Assistant *2023 -*

- Generative AI fairness research: program synthesis experiments with ChatGPT and Frama-C.
- AI fairness research: development of an auditing framework and analysis of COMPAS dataset using the framework.

The News Lens Taipei
Software Engineer *2023*

- Website development in JavaScript with Next.js.
- LLM integration with LangChain.

SiFive Hsinchu
Hardware Engineer *2022 - 2023*

- Maintenance of assertion-based verification monitors of the cache communication protocol TileLink2 in Chisel of Scala.
- Development of regression automation tools for system validation in Bash and Perl.

Formal Land Paris
Software Engineer *2022*

- Formal verification of the OCaml codebase of Tezos economic protocol Jakarta in Coq.

Institute of Information Science, Academia Sinica Taipei
Research Assistant *2019 - 2022*

- Developed bit-level hardware verification safety algorithm based on algorithmic boolean learning and its implementation which solves about 300 of 747 instances in HWMCC10 benchmark. Optimized implementation with improved algorithm which combines learning and interpolation method solves about 400 instances.
- AIG input parser, solver interface, program data structures, profiling and logging, memory arena, and backend algorithm engines are independently implemented in C++ with minisat.

Institute of Information Science, Academia Sinica Taipei
Adjunct Research Assistant *2017 - 2019*

- SAT-solving non-trivial reduction of Poset Cover Problem for Message Sequence Chart synthesis implemented in Python with z3.
- NP-hardness of k-anonymity Checking Problem and a randomized algorithm thereof for the 2010 Taiwanese Population And Housing Census data implemented in Python with MySQL.