

CHIH-CHENG REX YUAN

hello@rexyuan.com

EDUCATION

National Taiwan Normal University <i>B.S. in Computer Science and Information Engineering</i>	2014 - 2019
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 <i>Research Assistant</i>	Taipei 2023 -
---	------------------

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

The News Lens <i>Software Engineer</i>	Taipei 2023
--	----------------

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

SiFive <i>Hardware Engineer</i>	Hsinchu 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 <i>Software Engineer</i>	Paris 2022
--	---------------

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

Institute of Information Science, Academia Sinica <i>Research Assistant</i>	Taipei 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 <i>Adjunct Research Assistant</i>	Taipei 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.

PUBLICATION

Ensuring Fairness with Transparent Auditing of Quantitative Bias in AI Systems <i>IEEE 2024 Pacific Neighborhood Consortium Annual Conference and Joint Meetings (PNC)</i>	2024
--	------