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https://github.com/MarisaKirisame/

Marisa Kirisame

Education

2020–2022 **PhD**, *University of Utah*, Salt Lake City

2019–2020 **Master**, *University of Washington*, Seattle

2015–2019 **Bachelor**, *University of Washington*, Seattle

Experience

2020–2022 **CPU**, *Utah*, PHD Researcher

2015–2019 **PLSE**, *Seattle*, Undergraduate Researcher
Worked on TVM at junior/senior.
Worked on Cassius(https://cassius.uwplse.org/) and Verdi(http://verdi.uwplse.org/) at freshman.

Publications

[1] Marisa Kirisame, Steven Lyubomirsky, Altan Haan, Jennifer Brennan, Mike He, Jared Roesch, Tianqi Chen, and Zachary Tatlock. Dynamic tensor rematerialization. In *International Conference on Learning Representations*, 2021.

[2] Jared Roesch, Steven Lyubomirsky, Marisa Kirisame, Josh Pollock, Logan Weber, Ziheng Jiang, Tianqi Chen, Thierry Moreau, and Zachary Tatlock. Relay: A high-level IR for deep learning. *CoRR*, abs/1904.08368, 2019.

Projects & Skills

DTR Developed an algorithm for gradient checkpointing. Currently upstreaming to pytorch. Adopted by Megengine and used in production.

TVM Top 20 contributor. Contributed to the design of Relay, a higher order, differentiable IR. Implemented Algebraic Data Types, Automatic Differentiation, Reference, Pretty Printing, Ahead-Of-Time Compiler, Partial Evaluator, contributed to Type Inference.

Happy-Tree A polytypic decision tree in Haskell that work on any True-Sums-Of-Products.

Ordinary A small web game to teach programming. Used Functional Reactive Programming, Nix, Zipper, and GHCJS.

PE Simply Typed Lambda Calculus with reference/product/sum with Bidirectional Type Checking, Partial Evaluation, Automatic Differentiation. Written in MetaOCaml so it can be compiled to OCaml.

Astraea Apply equality saturation to Compcert, a verified C compiler in Coq.

Prover An automated theorem prover for first order logic that use Gentzen's Sequent Calculus. Logic Formula represented as Generalized Algebraic Data Type using TMP in C++.

AI Implemented multiple search algorithms in AI Modern Approach, Including A Star, Bidirectional Breath First Search, Constraint Satisfication Programming with K Arch Consistency optimization. Heavily used Iterator Style and Boost to increase efficiency.

Language Fluent in Mandarin, Cantonese, and English.

Coursework

- Programming Languages, Deep Learning
- Advanced Computer Architecture
- Graduate Theoretical Computer Science
- Operating Systems
- Database
- Systems for Machine Learning