Marisa Kirisame

✉ jerry96@cs.uw.edu
⌂ www.marisa.moe
⊕ https://github.com/MarisaKirisame/

Education

2020–2020	**Master**, *University of Utah*, Salt Lake City.
2019–2020	**Master**, *University of Washington*, Seattle.
2015–2019	**Bachelor**, *University of Washington*, Seattle.

Experience

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

Publications

[1] 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.

[2] Marisa Kirisame, Steven Lyubomirsky, Altan T. Haan, Jennifer Brennan, Mike Z He, Jared Roesch, Tianqi Chen, and Zachary Tatlock. Dynamic tensor rematerialization. *ArXiv*, abs/2006.09616, 2020.

Projects

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.

DTR — An algorithm for efficient dynamic checkpointing. Implemented in a Pytorch fork. Currently upstreaming.

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 Template Metaprogramming in C++.

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

Coursework

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