MIKE HE

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SKILLS

Languages	C/C++, Python, Java, Rust, OCaml, Haskell, Coq, Agda, LaTeX
Skills	Certified & Functional Programming, Automated Verification
Others	I've been playing the violin for 17 years. I like Symphonies composed by Gustav Mahler.

EDUCATION

University of Washington, Seattle *Sept. 2018—Est. Jun. 2022*

B.S. in Computer Science

- Cumulative GPA: 3.89
- Field of Studies: Programming Languages & Formal Verification & Compilers & MLSys

EXPERIENCE

PLSE & SAMPL Research Group, University of Washington Oct. 2019—Now

Research Assistant *Seattle, WA*

· Working on building an **automated** and **verified compiler** for Deep Learning acclelerators

· Added new features such as Experiment **Profiler** in the evaluation infrastructure for Relay in TVM addressing performance bottleneck

· Worked on Dynamic Tensor Rematerialization, an online greedy gradient checkpointing algorithm that **enables** training Deep Learning models **on memory-constrained devices**.

ECE, University of Washington Jan. 2019—Sept. 2019

Research Assistant *Seattle, WA*

· Developed an online panel for visualizing data collected from solar panels deployed around UW campus.

PROJECTS

Sager

- A demonic data structure synthesizer that aims to explore worst-cases performance of graph algorithms.
- **Language** & Tools: **Racket**, **Rosette**, Z3
- Keywords: SMT Solver, Incremental Solving, Program Synthesis, Symbolic Execution

veripy

- An auto-active program verification library for Python 3 that can verify implementations against specifications of programs.
- **Language** & Tools: **Python 3**, **SMT-LIB**, Z3, pyparsing
- Keywords: SMT Solver, Static Analysis, Hoare Logic, Program Verification

dtlc

- An implementation of dependently-typed lambda calculus that can be used as a Proof Assistant
- **Language** & Tools: **OCaml**, Menhir, Dune
- Keywords: Type Theory - Dependent Type, Proof Assistant, Functional Programming

PUBLICATIONS

- Kirisame, M., Lyubomirsky, S., Haan, A., Brennan, J., **He, M.**, Roesch, J., Chen, T., Tatlock, Z. *Dynamic Tensor Rematerialization.* ICLR 2021 (Spotlight). September 19, 2020. https://arxiv.org/abs/2006.09616

HONORS

- **Lynn Conway Research Award (DTR Team)**, ADA *2020*
- **Annual Dean's List**, University of Washington *2018—2020*
- **Second Prize**, National Olympiad in Informatics (Beijing Regional) *Dec. 2016*