

Krzysztof Drewniak

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3401 S Lamar Blvd. Apt 2206 Austin, TX 78704-2653; US and EU citizenship

Objective Not currently looking, but want a more up to date resume

EDUCATION

UNIVERSITY OF WASHINGTON

PHD IN COMPUTER SCIENCE

Sep 2018-Mar 2021 (indefinite pause)
Seattle, WA | Master's Degree:
December 2020

UNIVERSITY OF TEXAS AT AUSTIN

BS IN COMPUTER SCIENCE | TURING SCHOLARS HONORS PROGRAM | BS IN PURE MATHEMATICS

Aug 2014-May 2018 | Austin, TX

TEXAS ACADEMY OF MATHEMATICS AND SCIENCE

EARLY COLLEGE PROGRAM |

UNIVERSITY OF NORTH TEXAS

Aug 2012-May 2014 | Denton, TX

LINKS

Github:// [krzysz00](#)

Website <https://kdrewniak.com>

LinkedIn:// [kdrewniak](#)

SKILLS

PROGRAMMING

Significant experience:

MLIR/LLVM • Python • C/C++ • Rust • Haskell • Common Lisp • Erlang

Some experience:

Assembly • Ruby (Rails) • JavaScript & jQuery • Java • Coq

OTHER TECHNICAL

High-Performance Computing • Compilers • Optimization • Linux • SQL • Machine Learning • Distributed systems • Jenkins

NON-TECHNICAL

Technical writing • Open source

GITHUB PROJECTS

SWIZZLEFLOW

Accelerator kernel synthesis.

RUST-KERNEL

Proof-of-concept teaching OS in Rust.

PPC-BOARD-2.0

Modernized rewrite of an unusual forum system in Ruby on Rails.

EXPERIENCE

AMD SENIOR MACHINE LEARNING COMPILER ENGINEER

July 2023-Present | Austin, TX

MACHINE LEARNING COMPILER ENGINEER

May 2021-July 2023 | Austin, TX

- Developer on rocMLIR (machine learning kernel generator)
- Proactively improved performance, code maintainability
- Tech lead for new MI-series hardware support, MIGraphX integration
- Drove upstream contributions (ex. integer range analysis)
- Improved buffer resource support in LLVM backend

GOOGLE | SOFTWARE ENGINEERING/RESEARCH INTERN

Jun 2019-Aug 2019 | Mountain View, CA

- Implemented Tensorflow Lite importer for the MLIR framework
- Began research on optimizing accelerator loop nests using dynamic programming

MICROSOFT | SOFTWARE ENGINEERING INTERN, AI & RESEARCH

Jun 2017-Aug 2017 | Bellevue, WA

- Developed deep learning models for Bing Maps auto-suggest
- Produced significant projected improvements in result quality

See LinkedIn or CV for pre-2017 internships, open-source work.

RESEARCH

SWIZZLEFLOW, PROGRAM SYNTHESIS GROUP

August 2018-March 2021 | Seattle, WA

Designed and created Swizzleflow, a system for representing and synthesizing optimized kernels for accelerators with Dr. Ras Bodik.

ELECTRICAL AND COMPUTER ENGINEERING

February 2018-June 2018 | Pittsburgh, PA

Developed, with Dr. Tze Meng Low, an automated high-level loop fusion analysis method based on loop invariants for linear algebra algorithms.

HIGH-PERFORMANCE AND AUTOMATIC COMPUTING

September 2017-January 2018 | Aachen, Germany

With Prof. Paolo Bientinesi, investigated methods for the automatic generation of code to efficiently normalize linear algebra expressions from axioms.

SCIENCE OF HIGH-PERFORMANCE COMPUTING GROUP

September 2016-May 2018 | Austin, TX

Worked with Dr. Robert Van De Geijn to optimize the matrix operation $D+ = ABC$ and create techniques for optimizing similar kernels.

SELECTED PUBLICATIONS

- [1] K. Drewniak. GEMM3: Constant-workspace high-performance multiplication of three matrices for matrix chaining. Honors thesis, 2018.
- [2] K. Drewniak. Swizzleflow: Synthesis of irregular data mappings in accelerator kernels using novel pruning abstractions. Qualifying exam report, 2020.