# Krzysztof Drewniak

https:/kdrewniak.com | krzysdrewniak@gmail.com | +1 214-315-4811
5505 15th Ave NE Apt 206, Seattle, WA 98105-3456; US and EU citizenship

**Objective** Seeking full-time software engineer or research position.

## 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
Cum. GPA: 3.96
CS GPA: 3.97

### TEXAS ACADEMY OF MATHEMATICS AND SCIENCE
Early college program | University of North Texas
Aug 2012–May 2014 | Denton, TX
GPA: 4.0

## LINKS

Github:// krzysz00
Website https://kdrewniak.com
LinkedIn:// kdrewniak

## SKILLS

### PROGRAMMING
Significant experience:
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

### NON-TECHNICAL
Presentations • Technical writing

## GITHUB PROJECTS

### SWIZZZLEFLOW
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

### GOOGLE | Software Engineering/Research Intern
Jun 2019–Aug 2019 | Mountain View, CA
- Planned & begin research on optimizing accelerator loop nests using dynamic programming
- Implemented Tensorflow Lite importer for the MLIR compiler

### 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

### TRUECAR | Software Engineering Intern
Jun 2016–Aug 2016 | Austin, TX
- Developed machine learning solution to combat lead spam
- Collaborated across remote teams to source data

### WHATSAPP (FACEBOOK) | Software Engineering Intern
June 2015–August 2015 | Mountain View, CA
- Increased media server reliability and performance
- Overhauled internal alert distribution system

## RESEARCH

### SWIZZLEFLOW, PROGRAM SYNTHESIS GROUP
August 2018–Present | 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.

## TEACHING

**Domain-specific languages, Winter 2020** Led recitations, wrote exams, and independently unproved grading infrastructure.

**Computer Architecture, Spring 2016** Developed new assignments, including a teaching compiler to introduce C and assembly.

## 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.

[3] K. Drewniak, J. Helsing, and A. R. Mikler. A method for reducing the severity of epidemics by allocating vaccines according to centrality. ACM BCB, 2014.