Nathan **Zhang**

SOFTWARE ENGINEER · COMPILERS ADDICT

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"Make the language you wish you were using."

Education

University of California, Berkeley   *Berkeley, California*

B.S. IN COMPUTER SCIENCE AND ENGINEERING   *August 2014 - PRESENT*

- Recipient of Regents and Chancellor's Scholarship.
- Studying Electrical Engineering and Computer Science, focusing on compilers, programming languages, and HPC.
- Courses: Compilers, Algorithms, Graphics (IP), Parallel and Distributed Programs (Grad), Communication Avoiding Algorithms (Grad), Advanced Techniques in Program Analysis and Testing (IP, Grad)

Work Experience

Google   *Mountain View, California*

SOFTWARE ENGINEERING INTERN   *May 2016 - August 2016*

- Designed and implemented compilers for custom architectures.

ASPIRE Lab, UC Berkeley   *Berkeley, California*

UNDERGRADUATE STUDENT RESEARCHER   *September 2014 - PRESENT*

- ReductionSpecializer - A specialized reduction library, Python, C codegen, OpenCL
- Rebox - Data Layout optimization for scientific computing - Python, C codegen
- PyGMG - Geometric Multigrid implemented in Python - Python, C codegen, OpenCL codegen, OpenMP Codegen
- Snowflake - DSL built on top of Python with multiple execution backends - Python, C codegen, OpenCL codegen

UC Berkeley   *Berkeley, California*

UNDERGRADUATE STUDENT INSTRUCTOR   *June 2015- August 2015*

- Taught CS70 - Discrete Mathematics and Probability as a TA during the summer
- Had a 1 hr. discussion 4 days a week, two office hours, and started review sessions for CS70 in addition to the weekly homework party

Extracurricular Projects

UC Berkeley   *Berkeley, California*

UNDERGRADUATE RESEARCH SYMPOSIUM ORGANIZER   *September 2015 - PRESENT*

- The Berkeley Undergraduate Research Symposium is a student-run poster session comprised of undergraduates in research. It seeks to promote interaction between student researchers as well as to expose interested students to the broad diversity of topics. In the past, we have enjoyed representation from fields stretching from quantum mechanics to information theory and imaging.

Independent   *Berkeley, California*

PYRANOID   *May 2014 - June 2014*

- Designed and implemented class-level proxying including functions such as issubclass. Accurately behaves like the original, but objects and classes can have hooks and triggers attached without changing functionality with existing code.

Independent   *Berkeley, California*

SHOCK   *September 2014 - November 2014*

- Designed and built Java-style dynamic dispatching in Python through Python3 annotations and decorators.

Publications

Snowflake: A Lightweight Portable Stencil DSL   *Workshop Paper - In Progress*

FIRST AUTHOR   *May 2017*

- Snowflake is a portable stencil DSL embedded within Python, designed for interfacing with multiple different backends. Currently, Snowflake has support for generating and linking C, OpenMP, and OpenCL (GPU) code that is provably correct, and executes Python code at low-level performance language speeds.