Zachary Yedidia

zyedidia@stanford.edu

zyedidia.github.io, github.com/zyedidia

Areas of interest: operating systems, security, compilers, computer architecture.

Education

Stanford University Stanford, CA
Ph.D. candidate in Computer Science *Sep. 2021 – 2027 (expected)*
Advisors: Prof. David Mazières and Prof. Dawson Engler

Harvard University Cambridge, MA
S.M. in Computer Science *Sep. 2020 – May 2021*

Harvard College Cambridge, MA
A.B. Magna cum laude with highest honors in Computer Science *Aug. 2017 – May 2021*

Publications

Automated Formal Verification of a Software Fault Isolation System (short paper)
Matthew Sotoudeh and Zachary Yedidia
FMCAD 2025

Deterministic Client: Enforcing Determinism on Untrusted Machine Code
Zachary Yedidia, Geoffrey Ramseyer, David Mazières
OSDI 2025

Segue & ColorGuard: Optimizing SFI Performance and Scalability on Modern Architectures
Shravan Narayan, Tal Garfinkel, Evan Johnson, Zachary Yedidia, Yingchen Wang, Andrew Brown, Anjo Vahldiek-Oberwagner, Michael LeMay, Wenyong Huang, Xin Wang, Mingqiu Sun, Dean Tullsen, Deian Stefan
ASPLOS 2025

DeCl: Deterministic and Metered Native Sandboxes
Zachary Yedidia, Geoffrey Ramseyer, David Mazières
SIB 2024 (workshop)

Lightweight Fault Isolation: Practical, Efficient, and Secure Software Sandboxing
Zachary Yedidia
ASPLOS 2024

Fast Incremental PEG Parsing
Zachary Yedidia and Stephen Chong
SLE 2021

Precision Batching: Bitserial Decomposition for Efficient Neural Network Inference on GPUs
Maximilian Lam, Zachary Yedidia, Colby Banbury, Vijay Janapa Reddi
PACT 2021

Open Source Projects

Lightweight Fault Isolation (LFI) Paper, GitHub Project

A state-of-the-art software-based sandboxing system that enforces memory isolation on machine code within a single address space. LFI can be used for in-process library sandboxing, low-latency serverless functions, application sandboxing, smart contracts, and more. This is my primary current project.

Micro Text Editor Website, GitHub Project

I created and launched a text editor called Micro in April 2016. Since then, Micro has gained over 25,000 stars on GitHub, more than 750,000 downloads, and 100+ contributors. It aims to be a successor to Nano as a simple-to-use terminal-based text editor. Micro is available in many package managers such as Homebrew, Apt, Snap, AUR, Chocolatey and more.

GPeg Paper, Thesis, Slides, GitHub Project

Library for PEG parsing, as part of my senior thesis research with Professor Stephen Chong. Additionally includes a library for syntax highlighting: github.com/zyedidia/flare.

Literate Programming Tool Website, GitHub Project

A tool for compiling Literate programs written in any programming language.

Eget GitHub Project

A tool for automatically installing pre-built binaries distributed in GitHub releases.

Go Generic Data Structures Github Project

A library of generic data structures for Go.

Knit GitHub Project

A flexible build tool that combines Lua with Make's declarative rules language.

Writing

Incremental PEG Parsing

Senior thesis (2021), advised by Prof. Stephen Chong.

SystemVerilog Guide

Course materials for CS 141 (Spring 2020) at Harvard

Awards

NSF Graduate Research Fellowship (2022-2024).

Service

External reviewer for ACM TOPLAS.

Experience

Google Mountain View, CA
Student Researcher *Summer 2025 - Present*

SiFive San Mateo, CA
Chisel Team Intern *Summer 2022*

Zero ASIC Virtual
Intern *Summer 2021*

Harvard University Cambridge, MA
HCRP Research Fellow (Advisor: Prof. Stratos Idreos) *Summer 2020*

Princeton University Princeton, NJ
Research Assistant (Advisor: Prof. Naveen Verma) *Summer 2019*

Harvard University Cambridge, MA
PRISE Research Fellow (Advisor: Prof. Eddie Kohler) *Summer 2018*

Teaching

Distributed Systems (CS244b) Stanford
Course Assistant for Prof. David Mazières *Spring 2024*

Advanced Topics in Operating Systems (CS240) Stanford
Course Assistant for Profs David Mazières and Dawson Engler *Spring 2023*

Using Bits to Control Atoms (CS49n) Stanford
Course Assistant for Prof. Dawson Engler *Autumn 2021*

Systems Programming and Machine Organization (CS61) Harvard
Teaching Fellow for Profs Eddie Kohler and Minlan Yu *Fall 2020*

Computing Hardware (CS141) Harvard
Teaching Fellow for Profs David Brooks and Vijay Reddi *Spring 2019, Spring 2020*

Compilers (CS153) Harvard
Teaching Fellow for Prof. Stephen Chong *Fall 2019*

Talks

Lightweight Fault Isolation: LLVM Support for Efficient Native Code Sandboxing
LLVM Developers' Meeting *October 2025*

Deterministic Client: Enforcing Determinism on Untrusted Machine Code
OSDI *July 2025*

Deterministic Client: Enforcing Determinism on Untrusted Machine Code
MIT DCI *May 2025*

Securing Native Libraries on Android with LFI
Qualcomm Product Security Summit *May 2025*

Deterministic Client: Enforcing Determinism on Untrusted Machine Code
Stanford Security Workshop *April 2025*

Lightweight Fault Isolation
Software Compartmentalization Community Tech Talk *April 2025*

Deterministic Client: Enforcing Determinism on Untrusted Machine Code
Stanford Security Lunch *March 2025*

Sandboxing Native Libraries on Android with Lightweight Fault Isolation (LFI)
Google *February 2025*

DeCl: Deterministic and Metered Native Sandboxes
SIB *September 2024*

DeCl: Deterministic and Metered Native Sandboxes
Stanford Software Lunch *July 2024*

Lightweight Fault Isolation: Practical, Efficient, and Secure Software Sandboxing
ASPLOS *April 2024*

Lightweight Fault Isolation: Practical, Efficient, and Secure Software Sandboxing
Stanford Security Workshop *April 2024*

Lightweight Fault Isolation: Practical, Efficient, and Secure Software Sandboxing
Stanford Security Lunch *November 2023*

Classic Software Fault Isolation and WebAssembly
WebAssembly Research Day *October 2023*

Multiplix: using D for kernel development
DConf *September 2023*

Fast Incremental PEG Parsing
SLE *November 2021*

Fast Incremental PEG Parsing
Stanford Software Lunch *November 2021*