

NATHAN WITHERS

nathan@thewithz.tech ◊ web.thewithz.tech ◊ github.com/TheWithz

EDUCATION

University of Pittsburgh

Bachelor of Science: Computer Science
School of Computing and Information

August 2017 - April 2020

GPA: 3.23

PROJECTS

C-minus to MIPS Compiler

C++ & MIPS assembly

- Compiles the toy language C-minus to MIPS assembly, then run with spim
- Lexer written from scratch while interfacing Bison for parsing

Custom TCP/IP Stack

C++

projects.thewithz.tech/TCP

- Interfaces the Minet stack to perform stop and wait with retransmissions
- Flow and congestion control

Secure File System

Java & Gradle

projects.thewithz.tech/SFP

- File Storage client server model
- Utilizes signed Diffie Helman and RSA for implementing security principles
- Makes use of the Bouncy Castle API

Oxford Dictionary API Wrapper

Java & Gradle

projects.thewithz.tech/ODAPI

- Uses builders and other design patterns with JUnit testing
- Structural interfaces allow for abstraction of the underlying URL accessible API

MIPS Pipelined CPU

Logisim & Digital

- Designed with 2-bit branch prediction and superscalars as a learning tool
- Explores mitigating control hazards by resolving branches in different pipeline stages

OdysseyNow

- Hardware restoration of the 100% analog Odyssey gaming console
- An emulator that attempts to re-create the analog Odyssey for use with digital media

TECHNICAL SKILLS

Beginner: Rust, Golang, Postgresql, Flutter, Dart, HTML & CSS, Python

Intermediate: MIPS assembly, Linux, C, C++, Latex, Java, Git

WORK EXPERIENCE

Lowes Home Improvement

May 2018 - June 2019

Customer Service & Lumber Associate

- Worked with customers to design DIY & contractor projects