

# Ziheng (Luke) Zhuang

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## Skills

- **Programming languages:** Java, C, C++, Javascript, Typescript, Python, HTML, CSS, SCSS, SQL, Dart
- **IDE/Editors:** Vim, Visual Studio Code, IntelliJ, Visual Studio, Eclipse
- **Software:** Git, Node.js, Express, Spring Boot, Flutter, React, Redux, LLVM, MongoDB
- **Software Development:** Data Structures, Algorithms, Design Patterns, Problem Solving Skills

## Experience

### Intel Corporation - Software Engineer Intern

May 2021 - present

- Decreased area by **21%** and latency by **17%** of target FPGA hardware by designing compiler optimization passes using **LLVM** and **C++**
- Automated compilation flow for hybrid compiler by writing Perl scripts and adding compiler modules
- Completed tutorials for customers by recording experiments on the effect of compiler flags on performance

## Education

### University of Toronto

September 2019 - present

Honours Bachelor of Science with high distinction, Software Engineering Specialist

- **Teaching Assistant:** Software Design, System Programming, Principles of Programming Languages, Introduction to Computer Science
- Achieved Distinguished Marks: Software Design, Unix Programming, Web Development, Algorithm Design

## Projects

### Conterview

February 2021 - April 2021

- Developed a interview website in a team of 3 to provide continuous interview experience for companies
- Implemented shared code editor and real-time video meeting to increase interview speed by **30%** using **WebSocket**, **WebRTC** and **React**
- Enhanced interview reflectiveness by constructing secured code execution engine using **Docker** and **Node.js**
- Achieved flexible development by deploying reverse proxy using multiple docker containers and **Nginx**
- Increased user experience by building modularized dashboard UI using **Ant Design**

### SportCred

September 2020 - December 2020

- Built a cross-platform content creation and delivery mobile app for sport enthusiasts using **Flutter** and **Android Studio** in a team of 5
- Improved server response time by **50%** and development time by **23%** using **Spring Boot** and **Firebase**
- Provided precise and fast post recommendation system to attract users using **MySQL** and ML algorithms

### MiniCC

January 2021 - April 2021

- Architected a compiler for C language subset using **LLVM**, **Antlr4** and **C++**
- Improved the performance of generated program by **21%** and analysis efficiency by promoting variables from memory to registers in a optimization pass

### One Room

May 2021 - present

- Designed a clubhouse-like web application using **React**, **Typescript** and **SCSS** for text and audio chat
- Increased frontend load speed by **80%** by splitting code and using pure SCSS and typescript

### NeoLang

April 2021 - present

- Programmed a compiler for Java-like language with object system and generics in **LLVM** and **C++**

## Extracurricular Activities

### ACM-ICPC East Central North America Regional Programming Contest

October 2019, February 2021

- Won 18th, 14th place respectively by solving advanced algorithm problems like Dynamic Programming

## Awards & Achievements

University of Toronto Scarborough Dean's List 2020