

TESLA ICE ZHANG

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EDUCATION

The Pennsylvania State University, PA, US 08/2018 – Present
Major: Computer Science (Undergraduate), Anticipated Graduation Date: 06/2022, GPA 3.23/4.00

WORK EXPERIENCE

JetBrains Research, Remote 01/2020 – 12/2020
(HoTT and Dependent Types) Arend Team Intern

- Improved the language/IDE, such as sections, hygiene macros, optimized `Fin` type, semantic highlighting, etc.
- Created a debugger for inspecting bidirectional type-checking and an extensible REPL framework with both CLI and IntelliJ IDEA implementations.

PingCAP Inc., Remote 08/2018 – 08/2019
(Distributed Storage Systems) TiKV Intern - Ecosystem Team

- Improved many TiKV-relevant libraries, like optimizing the performance of `grpcio`, adding new features to `procinfo`.

Sourcebrella Inc. (now Ant Financial Code Insight), Shenzhen, China 02/2018 – 07/2018
(Static Analysis) Developer Intern

- Created a multi-threading cross Java/Kotlin source code indexer which can index Hadoop within 4 minutes.

PERSONAL PROJECTS

Voile <https://github.com/owo-lang/voile-rs>
Experimental dependently-typed language with kind-based row-polymorphism

- Supports dependent types, meta variable unification, and non-dependent row-polymorphic record and variant.
- Supports cumulative universe and typical ambiguity to get rid of $\text{Set}\omega$.

IntelliJ Pest <https://github.com/pest-parser/intellij-pest>
A Pest grammar language plugin for IDEs based on the IntelliJ Platform

- Semantic-based highlighting, completion, navigation, definition extraction/inlining, and Rust plugin integration.
- Provides live preview – test grammar files by dynamically highlighting user code according to the grammar.
- Supports exporting the highlighted user code to HTML format.

SKILLS

- **Program Language: multilingual** (not limited to any specific language), especially experienced in Java Kotlin Rust C# Agda Haskell Arend, comfortable with Dart C C++ F# F* Idris Perl (in random order).
- **Compiler:** understand various program representations such as CFG, ANF, HOAS, etc.
- **Kotlin/Java: 4 years** of experience, familiar with JNI, Gradle, and Swing, understand Contract DSL and Kotlin coroutines, did some code analysis with Kotlin's compiler.
- **Type Theory:** understand Martin-Löf type theory, coinduction, Homotopy type theory and Cubical type theory, familiar with Idris, Agda (**3 years** of experience, contributor), F*, Arend (prior member) and some Coq.
- **IDE Tooling: 3 years** of experience, familiar with the IntelliJ Platform infrastructure (created Julia, DTLC, Pest, etc.), also have experience with Eclipse/SonarQube/VSCode plugin development.
- **Development Tool:** can adapt to any editors/OSs, usually use JetBrains IDEs and Emacs under Ubuntu.

MISCELLANEOUS

- Some profile links (please use a PDF reader with hyperlink support): Bintray profile (for publishing JVM libraries), Crates.io profile (for publishing Rust libraries), IntelliJ Plugin developer profile, Research Statement
- Languages: English - fluent (TOEFL 100), Chinese - native speaker
- Opensource Contributions: <https://ice1000.org/opensource-contributions> contributed to `agda`, `Arend`, `KaTeX`, `shields.io`, `raft-rs`, `grpc-rs`, `intellij-solidity`, `intellij-haskell`, `intellij-rust`, `intellij-arend`, `TeXiFy-IDEA`, `rust-analyzer` and other projects
- StackOverflow: <https://tinyurl.com/y5cmw3dz> 5000+ reputations, also active on other StackExchange sites
- Get the latest one-page version of this resume: <https://tinyurl.com/y8xdlfug>
- Get the latest complete version of this resume: <https://tinyurl.com/y2v59t36>
- **1 dan** on CodeWars, ranked #50 on the whole site (Top 0.019%), primarily in Haskell, Agda and Idris
- Love making friends