

TESLA ICE ZHANG

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🎓 EDUCATION

The Pennsylvania State University (PSU), PA, US 08/18 – Current

Major: Computer Science, Anticipated Graduation Date: 06/22

👤 WORK EXPERIENCE

Sourcebrella Inc., Shenzhen, China 02/18 – 07/18

Intern Compiler Front-End, IDE Plugin Development

- Created IntelliJ/CLion/Eclipse plugin of the Pinpoint analyzer. Helped create SonarQube plugin.
- Created a multi-threading cross Java/Kotlin source code indexer which index Hadoop in 4 minutes.
- Learned a lot about Linux programming and Clang/LLVM.

PingCAP, Remote 08/18 – Current

Intern TiKV - Ecosystem Team

- Improved many libraries used by TiKV. For example, optimized the memory performance of grpcio, and added new features to procinfo.
- Helped migrating the Protocol-Buffer library used by TiKV and its Raft implementation.
- Learned a lot about Rust programming, distributed system and databases.

🐱 PERSONAL PROJECTS

DevKt <https://github.com/ice1000/dev-kt>

Cross-platform lightweight code editor / Kotlin IDE

- Built-in Java/Kotlin highlights and completion, that can support other languages via plugins (transplantable from JetBrains IDE's). Has extra build & run support for Kotlin.
- Flexible architecture, decoupled high-level logic with UI, migration to other UI frameworks is easy.
- Provides fine-grained highlight color and keymap settings, supports hot reload.

minitt-rs <https://github.com/owo-lang/minitt-rs>

Experimental dependently-typed programming language, based on Mini-TT

- Supports Π types (return type depends on input value), Σ types (tuple's members' type depend on members' values), sum types and case-split.
- Extends the type system with subtyping on first-class sum types while still supports recursive types.
- Implements CLI parser / source code parser and interactive REPL with the help of Rust language's ecosystem.

Julia-IntelliJ <https://github.com/JuliaEditorSupport/julia-intellij>

Julia plugin for JetBrains IDEs

- Semantic-based highlighting, quick fixes, completion, parameter hint, special input mode for Unicode characters.
- Use Markdown plugin to highlight doc strings, provides REPL and SciView (showing the output of Plot libraries).

⚙️ SKILLS

- **Programming Languages:** **multilingual developer** (not limited to any specific language), and especially experienced in Java/Kotlin/Rust/C#/Agda/Haskell, comfortable with Dart/C/C++/F#/F*/Idris/Perl (listed in random order).
- **Compilers:** familiar with various Parser Generators/Combinators, understand CPS and ANF, studied some theories about dependent types (like Luo's UTT, Martin-Löf Type Theory) and their implementations in programming languages.
- **Kotlin/Java:** **3 years** of experience, **4** projects collected in Awesome Kotlin, familiar with JNI programming, the Gradle build tool and Swing, have experience in using the Kotlin compiler to analyze Java code.
- **Formal Verification:** understand dependent types / (co)algebra and Curry-Howard Isomorphism, currently studying Homotopy Type Theory and Cubical Type Theory, familiar with Idris, Agda (**1 years** of experience, developer team member) and F*
- Source code studied: Agda, Idris, miniagda, Mini-TT and TOG.
- **JetBrains MPS:** **1 years** of experience, understand concepts and applications of **Language-Oriented Programming**.

- **IDE Toolings:** **2 years** of experience, familiar with the IntelliJ Platform infrastructure and overall architecture (created the Julia plugin, Pest plugin and many others), also have experience with Eclipse/SonarQube
- **Mobile Development:** **2 years** of experience, Android (Java, Kotlin (Anko)), Fuchsia (Flutter).
- **Developing Tools:** can adapt to any editors/OSs, usually use JetBrains IDEs and Emacs under Ubuntu, have experience with team tools like YouTrack, Jira, GitHub, BitBucket, Coding.net, Tower.

i MISCELLANEOUS

- Blog: <https://ice1000.org/>, in English
- Literate Agda Blog: <https://ice1000.org/lagda/>, using Literate mode of Agda improved by me
- Bintray: <https://bintray.com/ice1000>, published some useful JVM libraries
- Crates.io: <https://crates.io/users/ice1000>, published some interesting Rust libraries
- IntelliJ Plugin developer: <https://plugins.jetbrains.com/author/10a216dd-c558-4aaf-aa8a-723f431452fb>
- Books about formal verification I've written: <https://github.com/ice1000/Books>
- Languages: English - fluent (TOEFL 100), Chinese - native speaker
- Opensource Contributions: <https://ice1000.org/opensource-contributions/>, member of JuliaEditorSupport, agda, pest-parser, EmmyLua and more, contributed to shields.io, djinni, raft-rs, grpc-rs, intellij-solidity, intellij-haskell, intellij-sdk-docs and more (apart from organizations' projects)
- StackOverflow: <https://stackoverflow.com/users/7083401/>, 3000+ reputations, also active on other StackExchange sites
- Get the latest version of this resume: <https://tinyurl.com/y8xdlfug>
- **1 kyu** on CodeWars, ranked **#32** on the whole site, primarily in Haskell, Agda and Idris
- Love making friends