

TESLA ICE ZHANG

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EDUCATION

The Pennsylvania State University (PSU), PA, US

08/2018 – Current

Major: Computer Science, Anticipated Graduation Date: 06/2022, GPA 3.20/4.00

WORK EXPERIENCE

Sourcebrella Inc., Shenzhen, China

02/2018 – 07/2018

(Static Analysis) Compiler Front-End, IDE Plugin Dev Intern

- Created IntelliJ/CLion/Eclipse plugin for the Pinpoint analyzer. Co-worked on the SonarQube plugin.
- Created a multi-threading cross Java/Kotlin source code indexer which can index Hadoop within 4 minutes.
- Learned a lot about Linux programming and the Clang/LLVM codebase.

PingCAP, 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.
- Helped to migrate the Protocol-Buffer library used by TiKV and its Raft implementation.
- Learned a lot about Rust programming, distributed system, and databases.

JetBrains, Remote

01/2020 – Present

(HoTT and Dependent Types) Theorem Prover development Intern

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.

Voile

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

Experimental dependently-typed programming language with row-polymorphism

- Supports dependent types, meta variable unification, and non-dependent row-polymorphic record and variant.
- Supports cumulative universe levels and uses a universe lifting operation to get rid of $\text{Set}\omega$.
- Implements CLI parser / source code parser and interactive REPL with the help of Rust language's ecosystem.

JetBrains, Remote

01/2020 – Present

(HoTT and Dependent Types) Theorem Prover Dev Intern

IntelliJ Pest

<https://github.com/pest-parser/intellij-pest>

Pest (parser generator written in Rust) plugin for JetBrains IDEs

- 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

- **Programming Languages: multilingual** (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/Arend (in random order).
- **Compilers:** understand various program representations such as Control Flow Graphs and A-Normal Form. Familiar with most parser generators, understand layout syntax parsing.
- **Kotlin/Java: 4 years** of experience, 4 projects collected in Awesome Kotlin, familiar with JNI, Gradle, and Swing, understand Contract DSL and Kotlin coroutines, did some code analysis with Kotlin's compiler.
- **Type System:** understand Martin-Löf Type Theory, coinduction and Cubical Type Theory, currently studying Homotopy Type Theory, familiar with Idris, Agda (**2 years** of experience, contributor), F*, Arend and some Coq. Source code studied: Agda, Idris, MiniAgda, Mini-TT, elaboration-zoo and Arend.
- **JetBrains MPS:** understand concepts and applications of **Language-Oriented Programming**.
- **IDE Toolings: 3 years** of experience, familiar with the IntelliJ Platform infrastructure and overall architecture (created the Julia plugin, DTLC plugin, Pest plugin and many others), also have experience with Eclipse/SonarQube plugin development

- **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 and Windows Subsystem of Linux, have experience with team collaboration tools like YouTrack, Jira, GitHub, BitBucket, Coding.net, Tower.

MISCELLANEOUS

- Bintray profile: <https://bintray.com/ice1000>, for publishing useful JVM libraries
- Crates.io profile: <https://crates.io/users/ice1000>, for publishing interesting Rust libraries
- IntelliJ Plugin developer profile: <https://plugins.jetbrains.com/author/10a216dd-c558-4aaf-aa8a-723f431452fb>
- Research profile: <https://personal.psu.edu/yqz5714/>
- Languages: English - fluent (TOEFL 100), Chinese - native speaker
- Opensource Contributions: <https://ice1000.org/opensource-contributions/>
member of JuliaEditorSupport, agda, pest-parser, EmmyLua and others, contributed to agda, KaTeX, shields.io, raft-rs, grpc-rs, intellij-solidity, intellij-haskell, intellij-rust, rust-analyzer and other projects (apart from organization ones)
- StackOverflow: <https://tinyurl.com/y5cmw3dz>, 3000+ reputations, also active on other StackExchange sites
- Get the latest version of this resume: <https://tinyurl.com/y2v59t36>
- Get the simplified version of this resume: <https://tinyurl.com/y8xdlfug>
- Get the Chinese version of this resume: <https://tinyurl.com/ya4urea8>
- **1 dan** on CodeWars, ranked #31 on the whole site, solving and making new problems primarily in Haskell, Agda and Idris
- Love making friends