Rajveer Singh Bharadwaj

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Open Source Enthusiast Seeking Full Time Opportunities

Experience

Apple Open Source - Swift, *Swift Compiler Contributor* | Remote   *Dec 2022 - Present*
- Added unimplemented **expression cases** in the **ASTPrinter**. **GitHub> PR**
- Improved out-of-place **Binding Diagnostic** reflecting 'var' or 'let' **Binding Pattern**. **GitHub> PR**
- Improved **Cast and Coercing** Diagnostics when **Literals** are involved. **GitHub> PR**

LLVM Open Source, *LLVM Compilers Contributor* | Remote   *Sep 2023 - Present*
- [clang] Disallow using "this" on **new** and **delete**. **GitHub> PR**
- [libc++] Fix ambiguity when using **std::scoped_allocator** constructor. **GitHub> PR**
- [libc++] **Diagnoses** insufficiently aligned pointers for **std::assume_aligned**. **GitHub> PR**

Rust Open Source, *Rust Compiler Contributor* | Remote   *Sep 2023 - Present*
- Switch from using **// ERROR** annotations with **–error-format** to error-pattern. **GitHub> PR**
- Bootstrap: Check validity of **–target** and **–host** triples before starting a **build**. **GitHub> PR**
- Improve **diagnostics** by suggesting to remove **visibility** qualifier. **GitHub> PR**

Fidelity Investments, *Software Developer Intern* | FCAT | Bangalore   *May 2023 - Jul 2023*
- Analysed and Visualized **Mongo's** Full Time Diagnostic Data - **FTDC Metrics**. **GitHub> Gist**
- Tech Stack: Go, Mongo, AWS S3. Grafana, Snowflake, Python, JavaScript, Git, Bash.

Education

(UG)	**B.Tech in Computer Science and Engineering**, *Bangalore Institute of Technology* | Bangalore, India	*2020-24*
(HS)	**Higher Secondary Education**, *Delhi Public School North Bangalore* | Bangalore, India	*2018-20*

Achievements

Active	**ICPC Regionalist Amritapuri Region, '@MainActor'**, ACM International Collegiate Programming Contest (ICPC)	*Link>Cert*
Active	**Specialist on CodeForces (Rating 1400+), Active on Top Platforms**, Competitive Programming	*Link>Profiles*
2022	**World Rank 1709 (AIR 389) in Google CodeJam Round 1C**, Google's Coding Competitions	*Link>Cert*
2022	**World Rank 1183 (AIR 857) in Google KickStart Round G**, Google's Coding Competitions	*Link>Cert*
2021	**World Rank 2833 in Meta HackerCup Round 2**, Meta's Coding Competitions	*Link>Cert*

Skills

Programming	C++, Swift, Rust, Python, JavaScript, Bash, Git, CMake, Ninja, Clang, LLVM, Vim, Compilers.
iOS Dev Tools	SwiftUI, UIKit, Foundation, Combine, ARKit, Vision, CoreLocation, MapKit, CocoaPods, FireBase, SwiftPM.
Developer Tools	Unix, macOS, Terminal, Xcode, Unity, HomeBrew, Rider, CLion, Rust Rover, PyCharm.

Projects

The Eva Programming Language - LLVM Compilers   *Q1 - 2024*
Built a programming language from scratch with LLVM Compilers Infrastructure, C++/CMake/LLVM   *GitHub>Link*
- Working on building a low-level programming **language** with **LLVM IR**.
- Production-level **language features** like functions/closures, lambdas and **OOPs** classes.
- Branch instructions, flow control and **code generation** with final **executable**.

Recursive Descent Parser- Tokenizers/Parsers/AST   *Q4 - 2023*
Implemented Recursive Descent Parser from scratch for a full programming language, Rust/Cargo   *GitHub>Link*
- **RDP Parser** built from scratch handling complex **constructs** during parsing process.
- Built **tokenizer** and parsing modules with generated **Abstract Syntax Tree** (AST).
- **Recursive** production rules to handle **generic functions**, implement **classes** and objects.

The Eva Interpreter (S-Expressions) - Interpreters/Runtime Semantics   *Q4 - 2023*
S-Expressions based Interpreter built from scratch focusing on runtime semantics, JavaScript/Node.JS   *GitHub>Link*
- JS-based implementation with elegant **multi-paradigm** structure and **functional** programming.
- **Inheritance** and prototype based OOPs with **environments** and nested scopes.
- User-defined and built-in native **functions/lambdas** with **syntactic sugar** for operators.

Crypto Tracker - iOS   *Q4 - 2023*
Visualise Live Crypto Price Charts With Comprehensive Overview, SwiftUI iOS App   *GitHub>Link*
- A Crypto Currency App tracking **live data** via third-party **API** with user portfolio.
- Dynamic **Chart Detail** utilising SwiftUI with **Combine** and **CoreData** for data **persistence**.
- Appealing visuals, **animations** and **core** functionality with great **UI** experience.

Competitive Programming - Templates   *Q1 - 2023*
Custom Competitive Programming Templates, C++/Rust Template Programming   *GitHub>Link*
- Implementation of **data structures** and **algorithmic** templates with C++ and Rust.
- Segment **Trees**, **Modular** Integer, **Combinatorics**, Disjoint **Set** Union and many more.
- Utilises **Generics** and **optimised** logic for fast **computations** in heavy input data.