

# Rajveer Singh Bharadwaj

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Open Source Enthusiast Seeking Full Time Opportunities

## Experience

### Fidelity Investments, Software Developer Intern | FCAT | Bangalore

May 2023 - Jul 2023

- Integrated a Unified Observable solution for **Green Meadows** Databases. [GitHub> Gist](#)
- Analysed and Visualized **Mongo's** Full Time Diagnostic Data - **FTDC Metrics**.
- Tech Stack: Go, Mongo, AWS S3, Grafana, Snowflake, Python, JavaScript, Git, Bash.

### 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

- Fixed **\_CopySegment** helper in **ranges::copy** making it **constexpr**-friendly. [GitHub> PR](#)
- Fixed crashing strict **assertions** in **compiler** source [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](#)

## 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- Parsers/AST

Q4 - 2023

Implemented Recursive Descent Parser from scratch for a full programming language, JavaScript/Node.JS

[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.