Rishabh Dwivedi

Github (107 followers) Leetcode (Guardian: 2205 peak rating) rishabhdwivedi17@gmail.com +918090372355

Education

- B.Tech in Computer Science, **IIIT Dharwad, CGPA: 9.1**, Graduated: May 2022

  (Awarded with **Director's Gold Medal for Best Outgoing Student**)

Experience

- **Zeta [SDE-1] (July 2023 - present)**
  - Created a mircoservice from scratch to monitor high priority users.
  - Worked upon optimizing legacy apis.
  - Reduced API taking 12 second time to 500ms by database optimizations.
- **Goodworker Technologies [SDE-1] (Jun 2022 - May 2023)**
  - Implemented various frameworks for goodworker backend's mircorservices.
  - Implemented a task library from scratch that handled scheduling of async tasks.
  - Implemented an Authorization microservice from scratch with **OAuth2.0 spec.**
  - Tech stack: **Typescript, Node.js, rxjs, OAuth2.0, OpenID Connect**
- **Salesforce [Intern] (Jan 2022 - Jun2022)**:
  - Worked on performance aspects of various products of salesforce.
  - Implemented a low-latency thread pool from scratch with task-stealing mechanism. This implementation was **10x faster** than the old implementation.
  - Improved code quality by replacing **singleton design pattern** with **strategy design pattern** to introduce **executor abstraction** in a codebase.

Open Source & ISO C++ Standard contributions

- **std::expected (Part of C++23 now)**: Implemented the ISO standard C++ proposal P2505 in C++20. The implementation is also acknowledged in the proposal. The motive of std::expected is to introduce a functional way of error handling in C++ standard library.
- **libunifex (Proposed for C++26)**: Implemented many unimplemented async algorithms proposed in P2300 in **facebook's** libunifex library from scratch. Thus also got my **copyright** on those files in facebook's codebase. libunifex implements P2300's executors proposal (targetting C++26) that proposes methodology of generic execution of tasks over scheduler and proposes the idea of structured concurrency.

  PR links: **into_variant algorithm**, **upon_* algorithm**, **bulk algorithm**, **get_completion_scheuler algorithm**

Publications / Journals

- Denial of ARP Spoofing in SDN and NFV enabled Cloud-Fog-Edge Platform **[Cluster Computing Journal]**

  In this work we are proposing a Denial of ARP spoofing approach to prevent internal ARP spoofing attack in SDN and NFV enabled Cloud-Fog-Edge platform. Unlike other approaches, DARPSpoof also prevents against DOS, DDOS and session hijacking attacks. It also significantly reduces the overhead towards SDN Controller in terms of flow rules and Packet-In and Packet-Out traffic.

- Fairness and Applications' transport protocol aware frame aggregation using programmable WLANs **[Wireless Networks Journal]**

  In this work, we investigate major reasons for fairness issues, and propose a Fairness and Applications' transport protocol aware frame aggregation (FAFA) scheme using Pro-APs The FAFA scheme is evaluated against existing schemes using extensive simulations with the Network Simulator-3 (NS-3).

Projects

- **libparse**: A functional programming compile time string parsing libray. It provides some primitive parsers and powerful parser combinators to build higher level parsers. Given a string in compile time, it can parse the same in compile time itself. It has **20+ github stars**.
- **mraylib**: is a C++23 based ray tracing library to produce some real looking images. Unlike other ray tracers, the library is executor agnostic and pure algorithmic making it generic enough for many usecase. It has **30+ github stars**.
- **rssh**: rssh allows tunneling ssh connections between client and server using an intermediate machine making them able to connect even being on different network via the intermediate machine.
- **nvim-lsputils**: nvim-lsputils is lua plugin for neovim text editor that provide better frontend handler for nvim-lsp client. It has **400+ github stars**.
- **nvim-cheat.sh**: nvim-cheat.sh is lua plugin for neovim text editor that aims at reducing browsing by providing way to query programming questions from neovim itself. It has **130+ github stars.**

Skills

- **Programming Languages**: C++, Haskell, Lua, Typescript, Java, C [with **Design Patterns, Functional programming and OOP**]
- **Scripting**: Bash, sed, awk
- **Networking Research Skills**: SDN, NFV, OpenFlow, OVS, Floodlight(SDN Controller), NS-3, Wireshark, tcpdump, netstat
- **Cloud & Databases**: AWS, DynamoDB, MySQL