
Rishabh Dwivedi

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

- **Goodworker Technologies [SDE-1] (Jun 2022 - May 2023)**
 - Implemented various frameworks for goodworker backend's microservices.
 - 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.

Link: <https://github.com/RishabhRD/expected>

- **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_scheduler algorithm](#)

Publications / Journals

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

Links: <https://link.springer.com/article/10.1007/s10586-021-03328-x>, https://github.com/sdnnet/sdn_arp_spoof_detection

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]**

Link: <https://link.springer.com/article/10.1007/s11276-022-03153-z>

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 library. This library defines some basic parsers and exposes functional programming based parser combinators for developing higher-order parsers. Given a string in compile time, the parsers can parse those strings in compile time itself.
- **rssh**: rssh allows tunneling ssh connections between client and server using an intermediate machine. It allows client client and server to communicate even if they are in private networks if intermediate machine is hosted on public VPS.
- **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

Links

- Github: <https://github.com/RishabhRD/> (105 followers)
- Leetcode (**Guardian, Rating: 2206**): <https://leetcode.com/RishabhRD/>
- Email: rishabhdwivedi17@gmail.com
- Phone: +918090372355