Cover Letter

I am Upendra Upadhyay, with 5+ years of experience in software engineering, and I have worked with java and clojure in production and have used haskell, nix and rust in multiple projects, as mentioned below:

Project in Rust

Redis

This project is based on codecrafters redis rust, where I tried to implement the redis's RESP protocol, RDB parsing and replicating commands to the replica and Its multithreaded instead of single threaded unlike the original redis. You can find the videos streaming of me coding it here.

Maelstrom

This project is based on fly.io distributed systems challenges, where I tried to implement a few of the distributed systems concepts like echo servers, unique-id generation, broadcasting messages, etc.

Project in Haskell

Advent Of Code

This is advent-of-code 2023 in Haskell and you can read the blog here.

Sudoku

This solves the sudoku problem in a faster way, you can also read about it here.

NixOS

I manage a personal NixOS server for streaming media content/music to the TV and everywhere else remotely.
It is configured at this repository and you can access the site at www.hdggxin.in

The issues I usually face are:
1. Lots of ssh requests and people trying to access/DDOS the system.
2. People trying to get entry through sql injection and others

I realized that the internet is inherently an unsafe place and we should keep things locked out.

I usually write up small nix scripts and publish them online and people can reuse these scripts for setting up softwares.

Hardware

I have built low level hardware from scratch like a keyboard, you can read about it at the blog.

The Biggest issues that I faced was related to debugging the keyboard code - [QMK](QMK) and finding out some odd behavior of different architecture implementations by hardware vendors.

I have also worked with micro controllers like **Micro-Bit**, **ESP32**, **Arduino** and programming it in Rust, you can check videos of me making various toy applications.

Machine Learning

[Flower Species identification 102](#)

Udacity - November 2018 – January 2019 | PyTorch Scholarship Challenge

Scored accuracy of **99.4%** on Google test data by an ensemble of two different architectures of **RESNET-152** using transfer learning.

Tags: Convolutional Neural Network | PyTorch | Deep Learning | Transfer Learning

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You can read more about my work here.