

RISHABH JAIN

+91-9315776478 Portfolio rishabh.rj014@gmail.com linkedin.com/in/rishabhj11 github.com/r-rishabh-j

Education

Indian Institute of Technology, Ropar

July 2019 - May 2023

B.Tech in Computer Science and Engineering

CGPA: 8.7

with Honors in Artificial Intelligence

Honors focus: Federated Learning, Computer Vision

Industry Experience

Arista Networks, Bengaluru, India

July 2023- present

Software Engineer, Pluribus Team

- Contributing to the **Arista Firewall** in the Arista **Extensible Operating System** (EOS)

General Electric Healthcare, Bengaluru, India

May 2022- July 2022

EID Intern (Software Engineering)

Certificate ↗

- Worked on **deep learning models and computer vision algorithms** for patient monitoring in a team of 2.
- Deployed the developed models in an **autonomous patient monitoring pipeline**.
- Technologies: **Python, PyTorch, OpenCV, Docker**

Research Experience

Bodily Behaviour Recognition (MultiMediate 2023)

May 2023 - July 2023

Guide: Dr. Abhinav Dhall

IIT Ropar

- Worked on video transformers to develop a pipeline for multi-label detection of human actions in videos as in the **ACM Multimedia 2023 Multimedia Grand Challenges**.
- Co-authored paper “**MAGIC-TBR: Multiview Attention Fusion for Transformer-based Bodily Behavior Recognition in Group Settings**” which was accepted in the ACM MM 2023 Conference. Link ↗
- Technologies: **Python, PyTorch, OpenMMLab**.

Deep Federated Recommender Systems

August 2022 - July 2023

Guide: Dr. Shweta Jain

IIT Ropar

- Developed strategies to optimise costs involved while training **deep federated recommender systems**.
- Studied and implemented client selection algorithms on MovieLens datasets.
- Technologies: **Python, PyTorch**.

Spatio-Temporal Hotspot Detection in Microsoft Azure

August 2022 - July 2023

Guide: Dr. Viswanath Gunturi and Microsoft India

IIT Ropar

- Developed **data mining algorithms** to track **spatio-temporal patterns** of usage spikes(hotspots) in **Microsoft Azure Cloud Services** in India.
- Co-authored and submitted a paper **Periodic Spatio-Temporal Colored Hotspot Detection in Azure Traffic Data** in GeoInformatic Journal.
- Technologies: **Java, Python, PostgreSQL, PostGIS**

Epilepto Systems

January 2022 - May 2022

Guide: Dr. Ashish Sahani

Certificate ↗

- Contributed to an **Android cum WearOS smartwatch application** to monitor patients suffering from epilepsy.
- Ensured reliability of data transmission from watch to phone and vice-versa in the situation of frequent disconnection.
- Co-authored a conference paper titled “**A General System for Dataset Generation from Smartwatch Sensors for Biomedical Research**” accepted in COMSYS-2022.

Technical Skills

Languages: Python, C, C++, Java, Icarus Verilog, RISC-V 32I ISA

Query Languages: PostgreSQL, PL/pgSQL, PostGIS

Developer Tools: Git, Bash, Powershell, Docker, Postman, Linux, Anaconda, Google Cloud App Engine(GCP)

Libraries/Frameworks: Flask, OpenCV, Tensorflow, PyTorch, OpenAI Gym, Numpy, Pandas

Key Projects

Efficient Image Super-Resolution (NTIRE 2023)

February 2023 - May 2023

Guide: Dr. Abhinav Dhall

IIT Ropar

- Worked on a deep learning based image super-resolution system as a part of **NTIRE-2023** challenge.
- Designed an efficient system by modifying and improving the RFDN baseline model and achieved a higher PSNR on the DIV2K dataset.

Dynamic Scheduling of Planning in DYNA-Q

August 2022 - November 2022

Guide: Dr. Shashi Shekhar Jha

IIT Ropar

- Introduced **dynamic scheduling of planning steps** in **DYNA-Q** and **Deep DYNA-Q** reinforcement learning algorithms.
- Studied trade-off of model performance and training cost with a dynamic schedule for planning.

Full Stack "Employee Application Management" Web Portal, IIT Ropar

January 2022 - May 2022

Guide: Dr. Puneet Goyal

IIT Ropar

- Implemented a **full stack web application** with user authentication and multi-stage application propagation as a **part of IIT Ropar's website** to facilitate staff to avail LTC(Leave Travel Concessions); and deployed on Google Cloud App Engine.
- Technologies: **PostgreSQL, Flask, React.js and Google Cloud APIs.**

Academic Information Management System

September 2021 - November 2021

Guide: Dr. Viswanath Gunturi

IIT Ropar

- Implemented an Academic Information Management System to store, manage and process academic data; entirely in **PostgreSQL and PL/pgSQL.**
- Implemented user permissions along with stored procedures to perform operations on academic data.
- Source code- github.com/r-rishabh-j/academic-portal-dbms ↗

Field Programmable Gate Array

November 2020

Guide: Dr. Neeraj Goyal

IIT Ropar

- Implemented an **FPGA in Icarus Verilog** to simulate an adder, encoder and synchronous counter on the same fabric.
- Co-authored a paper "**Designing Re-configurable Fabric: A Pedagogical Learning Experience**".
- Source code- github.com/r-rishabh-j/FPGA ↗

Relevant Coursework

CSE: Algorithms & Data Structures, Operating Systems, Software Engineering, Databases, Computer Networks, Digital Logic Design, Programming Paradigms and Pragmatics, Computer Architecture, Theory of Computation

Honors in AI: Fundamentals of Data Sciences, Artificial Neural Networks, Artificial Intelligence, Reinforcement Learning, Computer Vision, Advanced Computer Vision, Research Methodology

Math: Calculus, Discrete Math, Linear Algebra, Probability and Statistics, Differential Equations, Optimization Techniques

Positions of Responsibility

Robotics Club, IIT Ropar

October 2020 - September 2022

Club Mentor and Representative (Head)

Certificate ↗

- Conducted club mentorship sessions for freshmen and led club projects.
- Overcame challenges to organise competitions in IIT Ropar's first-ever online techno-cultural fest 'Advitiya' and 'General Championship' during the pandemic.

ISMP, 2020

November 2020

Event head, Robotics Club events

IIT Ropar

- Event head of Robotics Club competitions in ISMP, a yearly freshmen induction program at IIT Ropar.

Scholastic Achievements

- Participated in the prestigious coding competition **ICPC Asia Amritapuri Regionals 2020** after qualifying **ICPC Amritapuri Preliminary 2020**, ranking 366 out of 8000+ teams. Certificates ↗.
- Recipient of **Institute Merit Scholarship from IIT Ropar thrice** for academic excellence.
- Participated in **ABU-ROBOCON Robotics Competition 2020**, qualifying for the national round of **DD-ROBOCON 2020** held in an online mode at IIT Delhi.