RISHABH JAIN

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EDUCATION

Columbia University, New York — **Aug 2025 - Dec 2026**
MS Computer Science (Machine Learning)

Indian Institute of Technology Ropar — **July 2019 - May 2023**
B.Tech (Honors) Computer Science and Engineering with Concentration in Artificial Intelligence — *Major CGPA: 8.7/10*
- Focused on Computer Vision, Reinforcement Learning and Federated Learning in AI Conc. — *Conc. CGPA: 8.93/10*
- Sole recipient of a BTech with Honors from the Class of 2023

RESEARCH WORK AND PUBLICATIONS

Video Transformer Based Bodily Behaviour Recognition — **May 2023-Oct 2023**
Supervised by Dr. Abhinav Dhall — *Monash University, IIT Ropar*
- Worked on bodily behavior recognition in a multi-view setting in two papers using the VideoSwin architecture.
- Secured 2nd place in the ACM MM 2023 Bodily Behaviour Recognition Grand Challenge. Certificate ↗
- **MAGIC-TBR: Multi-view Attention Fusion for Transformer based Bodily Behavior Recognition in Group Settings**; Surbhi Madan, Rishabh Jain, Gulshan Sharma, Ramanathan Subramanian, Abhinav Dhall; ACM MM 2023 ↗
- **Multi-View Attention Fusion for Explainable Body Language Behavior Recognition**; Surbhi Madan, Rishabh Jain, Ramanathan Subramanian, Abhinav Dhall; IEEE Transactions on Affective Computing ↗
- Technologies: Python, PyTorch, OpenMMLab

Spatio-Temporal Hotspot Detection in Microsoft Azure | BTech Capstone — **Aug 2022-Nov 2023**
Supervised by Dr. Venkata M. V. Gunturi and Microsoft | Thesis document ↗ — *Microsoft, IIT Ropar, Uni. of Hull*
- Formulated a statistical framework to identify spatio-temporal hotspots in **Microsoft Azure** from network autonomous system data stored in a spatial PostGIS database
- Contributed to implementation and deployment of database operations and algorithms, creation of synthetic data, and testing on Microsoft's proprietary dataset.
- **Periodic Spatio-Temporal Colored Hotspot Detection in Azure Traffic Data**: Rakesh Rajeev, Rishabh Jain, Venkata M. V. Gunturi, Vishawam Datta, Kartik Ramesh, Ashank Anshuman, Samir Jain, Manish Gupta; ACIIDS 2025
- Technologies: Java, Python, PostgreSQL, PostGIS

PROFESSIONAL EXPERIENCE

Arista Networks — **July 2023- present**
Software Engineer | rishabhj@arista.com — *Bengaluru, India*
- Contributed to SDN and OS development in 16 core Arista Software Forwarding Engine repositories for throughput, data-plane and control-plane enhancements in the Arista Multi-Domain Segmentation Service.
- Promoted to EngProd team in January 2025. Built a new auto-build tool used across all teams in Arista which bundles external AlmaLinux packages deps in Arista EOS to enable a smooth company-wide version control transition from Perforce to Git.
- Technologies: C, C++, Python, Go, Linux, Perforce, Git

GE Healthcare — **May 2022- July 2022**
Edison AI Intern | Certificate ↗ — *Bengaluru, India*
- Created an efficient computer vision based autonomous patient monitoring pipeline supporting 31fps on live feed
- Took an ablative approach to create a lightweight YOLOv5 model, training it on self-annotated and open-source datasets for over 280 GPU hours. Deployed the new pipeline in GE's Edison Digital Health Platform
- Technologies: Python, PyTorch, FastAPI, PostgreSQL, Docker

Epilepto Systems — **Jan 2022-April 2022**
Part-time intern | Certificate ↗ — *Epilepto Systems Lab, IIT Ropar*
- Overcame shortcomings of best-effort Android DataLayer fitness APIs to create a generalizable telemetry system for reliable collection of data from physiological sensors present in commonly available WearOS smartwatches. | Springer ↗
- Deployed the system in Epilepto's app for epileptic patients
- Technologies: Java, Android SDK, Python

TECHNICAL SKILLS

Languages: Verilog HDL, RISC-V, C, C++, Python, Go, Java, PostgreSQL

Tools: Linux, Powershell, Git, Perforce, Bash, Docker, Gazebo, Solidworks

Libraries: Flask, Django, React.js, ROS, OpenCV, PyTorch, OpenAI Gym, PostGIS, Android SDK

RELEVANT COURSEWORK

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

KEY PROJECTS

RFDN Variants: Efficient Image Super-Resolution NTIRE CVPR Challenge   **Feb 2023-May 2023**
Supervised by Dr. Abhinav Dhall | document ☐   *LASII Lab, IIT Ropar*
- Developed efficient **image super-resolution model variants** of the CNN based RFDN baseline
- Studied trade-offs between accuracy and runtime among variants and achieved a superior PSNR on the DIV2K dataset along with a reduced model inference time

Client Selection in Deep Federated Recommender Systems | Honors Project   **Oct 2022-March 2023**
Supervised by Dr. Shweta Jain | document ☐   *Game Theory Lab, IIT Ropar*
- Developed client subset selection strategies to optimize training costs in **federated recommender systems**
- Evaluated the strategies over collaborative filtering based deep recommender systems on MovieLens datasets

Dynamic Planning in Dyna-Q for Faster Training   **Sept 2022 - Nov 2022**
Supervised by Dr. Shashi Shekhar Jha | document ☐   *IIT Ropar*
- Studied impact of a dynamic planning schedule in **DYNA-Q** & **Deep DYNA-Q** reinforcement learning algorithms.
- Evaluated trade-offs in performance and training costs of various schedules on OpenAI Gym environments.

Full Stack Faculty Application Management Portal, IIT Ropar   **Jan 2022-May 2022**
Supervised by Dr. Puneet Goyal | presentation ☐   *IIT Ropar*
- Automated a previously on-paper multi-stage application process through the app, **boosting productivity of IIT Ropar's accounts department**.
- Contributed to **database and backend development** using PostgreSQL and Flask in the web app.

RISC-V CPU Simulator   **Jan 2021 - May 2021**
Supervised by Dr. T.V. Kalyan | github ☐   *IIT Ropar*
- Implemented a RISC-V 32I ISA CPU simulator with a user-friendly GUI in Python and PyQt5.
- Contributed to instruction parsing, branch prediction, instruction pipelining, multi-level cache and simulator GUI.

ABU-ROBOCON Robotics Competition, WardBot   **Oct 2019 - May 2020**
Supervised by Dr. Neeraj Goel   *Student Affairs, IIT Ropar*
- Developed an automated rugby robot in a team of 8, reaching the nationals stage of the competition. Contributed to CAD modelling, micro-controller programming and robot perception.

SCHOLASTIC ACHIEVEMENTS

- Secured **2nd place** in Bodily Behaviour Recognition challenge in **ACM MM 2023**. Certificate ☐
- Recipient of **Institute Merit Scholarship** and **B.Tech with Honors** from IIT Ropar for academic excellence.
- Participated in the prestigious coding competition **ICPC Asia Amritapuri Regionals 2020** after qualifying **ICPC Amritapuri Preliminary 2020**, ranking 366 out of 8000+ teams. Certificates ☐ .
- Participated in **ABU-ROBOCON Robotics Competition 2020**, qualifying for the national round of **DD-ROBOCON 2020** held in an online mode at IIT Delhi.

POSITIONS OF RESPONSIBILITY

Head Mentor and Representative, Robotics Club IIT Ropar   **Sept 2020-Oct 2022**
Supervised by Dr. Neeraj Goel, Dr. Shashi Shekhar Jha   *Certificates* ☐
- Conducted club mentorship sessions, managed club funding and spearheaded projects over a tenure of 2 years.
- Took seminars on CAD, machine learning and robotics for club members
- Organised club hackathons in IIT Ropar's first ever online techno-cultural fest 'Advitiya 2021' during the pandemic
- Participated in ABU-ROBOCON Robotics Competition 2020, qualifying for the national round of DD-ROBOCON 2020