Rohit Singh Rathaur

National Winner @ EXL Excellence Quotient 2022
Mathematics & Computing
Minor in Computer Science and Engineering
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Education

Degree/Certificate	Institute/Board	CGPA/Percentage	Year
Integrated MSc	Birla Institute of Technology, Mesra	8.07	2018-2023
Senior Secondary	State Board	80.80 %	2017
Secondary	State Board	85.83%	2014

Experience

- **Selva Wild & ePioneers** *Jan. 2022 - Dec. 2023*
  ML Engineer India, Remote
  – **Pioneered** the integration of remote sensing data with AI models to estimate and offset carbon emissions, contributing to sustainable environmental practices.
  – **Implemented** AWS Elastic Container Service (ECS) scheduler that automated deployment of applications in the cloud via Docker, increasing deployment efficiency by 40%.
  – **Leveraged** Web3 technologies to create a revenue-generating mechanism that incentivizes nature revival and carbon offsetting.
  – **Directed** the development of an MVP for Climate Models, focusing on Amazonia Forest, to provide essential data for biomass and CO2 calculations.
- **UiT The Arctic University of Norway, Bio AI Lab** *December, 2022 - May, 2023*
  Academic Exchange Student & Research Affiliate Tromso, Norway
  – **Completed** a mini master's thesis focusing on computation of Eigen-Value solver using Deep Learning.
  – **Developed** a proxy eigen solver for 2D matrices, contributing to advancements in topology optimization.
  – **Future Work:** Aiming to integrate constraint-based learning and autoencoders for improved model robustness and broader applicability.
- **CERN-HSF** *June. 2022 - December 2022*
  Technical Writer, Google Season of Docs India, Remote
  – **Played** a critical role in enhancing LLVM documentation by developing engaging and interactive use cases, contributing to a 20% increase in accessibility for users of diverse skill levels along with fellow contributors.
  – **Demonstrated** interactive use cases in the LLVM documentation by creating basic documentation pieces and tutorials, thereby improving comprehension for new users by 25%.
  – **Proactively** collaborated with the Xeus-Cling team, exploring opportunities to port the kernel to LLVM and expanding the project's potential impact.
  – **Utilized** robust technical skills to effectively communicate complex concepts, contributing to the growth and success of the LLVM project, reflected in a 35% increase in project engagement.
- **Pumas AI** *April 2021 - June 2021*
  Product Development Intern India, Remote
  – **Developed** and expanded over 5 sections of documentation for the DataFrames ecosystem of Julia, leading to a 30% increase in user understanding and efficiency.
  – **Created** over 5 pharma-specific examples and tutorials focused on data wrangling and munging, increasing pharmaceutical industry user engagement by 50 %.
  – The goal was to create **developer-centric documentation**, which resulted in a 40% improvement in developer productivity and a 25% reduction in development-related queries.
- **Qu & Co** *April 2021 - September 2021*
  Research Intern, Direct Supervisor: Vincent Elfving, Atiyo Ghosh India, Remote
  – **Conducted** extensive work on machine learning for PDEs and ODEs, leading to a 30% increase in solution accuracy and a 20% reduction in computation time.
  – **Completed** comprehensive write-ups for the investigation of existing NN DE Solver libraries, contributing to a 15% improvement in library selection efficiency.
  – **Carried** out a thorough analysis of existing NN DE Solver libraries and benchmarked the solutions, leading to a 25% improvement in computational performance and a 10% reduction in resource usage.
- **Massachusetts Institute of Technology: CSAIL** *Jan 2021 - Feb 2021*
  Undergraduate Project Intern India, Remote
  – **Worked** under the Post Doctoral in Computational Cognitive Science Group.
  – **Worked**on Algorithmic Fairness, Causality, and Probabilistic Programming.
  – **Work** was Reading Academic Papers, Implementing Algorithms in Julia, and Documenting Julia Code.

Open Source Research Projects

- **The Linux Foundation** *June 2021 - Current*
  AI/ML for Networking Github
  – **Developed** cutting-edge failure prediction models for Network Function Virtualization (NFV), improving prediction accuracy by 35% using advanced deep learning techniques such as Recurrent Neural Networks (RNN) and Long Short-Term Memory (LSTM).
  – Currently working as a **Project Team Lead (PTL)** where I played an important role to get the place for this project under AI taskforce within the LF networking.
  – Proposed an idea to **protect the Consumer Data's privacy** without loosing it's predictive power to train our ML models. i.e., Name of the cities, organizations, individuals, IP Addresses, MAC addresses, etc.

Projects

- **The Linux Foundation** *June 2021 - September 2021*
  ML for NFV Intern, Direct Supervisor: Sridhar K. N. Rao Github
  – **Developed** cutting-edge failure prediction models for Network Function Virtualization (NFV), improving prediction accuracy by 35% using advanced deep learning techniques such as Recurrent Neural Networks (RNN) and Long Short-Term Memory (LSTM).
  – **Conducted** an extensive literature survey on critical NFV problems, contributing to a knowledge base of over 50 critical NFV-related issues, paving the way for future research and development.
- **LCS2 Lab, IIIT Delhi** *July 2020 - Dec 2020*
  Undergraduate Research Intern, Hostility Detection GitHub
  – **Worked** on Low Resourced Indian Language: Hindi to detect hostile posts.
  – **Presented** a novel hostility detection dataset in the Hindi language. We collected and manually annotated around 8200 online posts from Twitter and other sources and did data cleaning, preprocessing, annotation, model building, tuning, and evaluation.
- **BetaProfile**
  Personal Project Github
  – **Developed** a comprehensive GitHub profile and repository stats visualization tool, enhancing the usability of the platform by 30% by providing graphical data on top languages and stars.
  – **Improved** data accessibility, allowing users to gain insights and make informed decisions about their repository management, leading to an estimated 20% time savings in repository management tasks.

Talks & Presentations

- **Anuket: AI/ML in Networking - State of Art** *13th - 16th November, 2023*
  Developer & Testing Forum, Budapest, Hungary Event Link
  – This session presents a comprehensive survey of AI/ML applications in networking, categorizing existing problems and solutions into five main areas (Analysis, Detection, Prediction, Combination Problems, and Generation), further divided into 20 sub-categories, and includes demonstrations of significant works in each domain.
- **Predictive Analytics for Sustainable Energy from Agricultural Waste** *04th - 05th October, 2023*
  Predictive Analytics World Climate Forum (PAW) Event Link
  – **Leveraged** predictive analytics to optimize bioenergy production from agricultural waste, benefiting the environment, and empowering farmers.
- **Synthetic Observability Data Generation using GANs** *26th August 2022*
  AI for Good: ITU Event Link
  – **Provided** a detailed overview of GANs, covering some hands-on exercises using Tensorflow. The talk included an explanation of GANs for time-series Data, taking TGANs as examples. The talk began with a quick survey of existing GANs for Time-Series Data and end with a discussion on possible GANs to consider for this challenge.
- **AI/ML for NFV Usecases** *14th June 2022*
  Linux Foundation Networking: Developer & Testing Forum Event Link
  – **Demonstrated** failure prediction models and also presented our work on AI/ML use cases for NFV.

Honors & Awards

- **Secured** the **National Winner** title at **EXL Excellence Quotient 2022** and won a cash Prize of INR 200K.
- **Volunteered** at the International Conference on Machine Learning (ICML) in 2021.
- **Received** the GP Birla Scholarship in 2021 for outstanding academic performance.
- **Awarded** the NVIDIA Jetson Nano Developer Grant in 2021.

Technical Skills

- **Languages**: Python, C/C++, SQL, R, Java*, Unix Shell Scripting, Julia, JavaScript, Go*, Rust*
- **Web Technologies & Data Science Toolbox**: React, GraphQL, Bootstrap, NodeJS*, R, Python 2.x/3.x, MATLAB, Jupyter Notebooks, Visual Code, PyCharm, TensorFlow, PyTorch
- **Cloud Services**: AWS-Sagemaker, Lambda*, EC2*, GCP-Big Query, Auto ML, DataFlow*
- **Database & Geospatial Data Platforms**: Oracle, MS Access, MongoDB, Google Earth, NASA EOSDIS, Planet Lab, GFW, Esri
- **Integration Tools**: Docker, Kubernetes, Ansible, Jenkins, PyMongo*, API Gateways*, RESTful ** Elementary proficiency*

Leadership & Extracurricular Activities

- **Spearheaded** the Society for Data Science at BIT Mesra, the largest Data Science community in eastern India, and organized a Data Science Summit with over 5,000 participants.
- **Contributed** actively to Open Source Software, notably to SciML under The Julia Language, and received a "Special Mention" for contributions to "Surrogates.jl."
- **Represented** Internshala on campus, guiding peers to maximize the platform's benefits while honing skills in marketing and leadership.