

# Rishab Ray

[github.com/RishabNeo](https://github.com/RishabNeo) [linkedin.com/in/rishab-ray-234b8b262/](https://www.linkedin.com/in/rishab-ray-234b8b262/) [22ec3040@rgipt.ac.in](mailto:22ec3040@rgipt.ac.in)

## Education

- **Rajiv Gandhi Institute of Petroleum Technology, Jais (UP)** 6.67 (CGPA till 4<sup>th</sup> semester)  
*Bachelor of Technology - Electronics Engineering* 2022- 2026
- **Sri Prakash Vidyaniketan Kapuluppada, Visakhapatnam (AP)** Percentage: 91.80  
*Central Board of Secondary Education (CBSE- XII)* 2021
- **Delhi Public School Visakhapatnam Steel Plant, Visakhapatnam (AP)** Percentage: 93.60  
*Central Board of Secondary Education (CBSE- X)* 2019

## Experience

- **Indian Institute of Technology- Kharagpur** July 2024 - Present  
*Supervisor: Niloy Ganguly, Prof. IIT Kharagpur* Remote
  - Studied Natural Language Processing.
  - Developing a LLM capable of interpreting humor within code snippets, enhancing its contextual understanding and user engagement in programming-related tasks. The model is fine-tuned to recognize coding jokes, puns and humorous syntax, creating a more interactive and relatable experience for developers. (WORK IN PROGRESS)

## Projects

- **Heart Disease Prediction** : October 2023 - November 2023
  - Self Project: Achieved 83.9% accuracy with centralized learning and 80% with federated learning (FL) using a 3-layer DNN. An API was then developed with FastAPI for cloud deployment.
- **Cervical Cancer Detection from PaP Smear Images** : December 2023 - February 2024
  - Self Project: Achieved 97.5% accuracy with centralized learning and 94.57% with federated learning (FL) using transfer learning. ResNet101V2 outperformed DenseNet201 as a backbone in FL.
- **Voting machine in Verilog:** November 2024 - Present
  - Tools: EDA Playground
  - The button presses corresponding to votes for different candidates were detected, and the vote counts were updated accordingly. Votes for each candidate were counted and stored, and the voting machine was reset to its initial state once voting was complete.

## Skills

- **Programming Languages:** Python, C, C++, Embedded-C, MATLAB
- **Hardware Description Languages:** Verilog, SystemVerilog, VHDL
- **Libraries:** Numpy, Pandas, Scikit-learn, Seaborn, Tensorflow, OpenCV, Matplotlib, Scipy
- **Platforms:** Windows, Linux, Jupyter
- **Others:** Federated Learning, Transfer Learning, Convolutional Neural Networks, Deep Neural Networks, FastAPI, L<sup>A</sup>T<sub>E</sub>X

## Research Work

- **A Model-Heterogeneity-Aware FL Framework for Medical Imaging** April 2024 - Present  
*Supervisor: Dr. Saptarshi Ghosh, Asst. Prof. RGIPT* Offline
  - Studied CNN, Federated Learning (FL) and Transfer Learning.
  - Designing a novel federated learning algorithm that effectively addresses model heterogeneity, outperforming SOTA algorithms. (WORK IN PROGRESS)

## Positions of Responsibility (PORs)

- **EDITORIAL and PR HEAD:** IEEE RGIPT SB
- **EVENT TEAM EXECUTIVE:** Science and Technical Council, RGIPT

## Achievements

- Qualified JEE-Mains 2022 with a score of 92 percentile.
- Achieved a perfect score of 100% in the Foundation of Information Technology subject, CBSE X Boards.
- Secured School Rank (1, 2); City Rank (2, 11); State Rank (51, 71) in 2nd and 5th IEO, respectively.

## Extra-Curricular Activities

- **EVENT ORGANIZER - Urjotsav'23:** overseen by S&T Council
- **ORGANIZER - SOLANA BOOTCAMP:** Together at Urjotsav'23, IEEE RGIPT in collaboration with ACS DTU Chapter and powered by Rise In, presented the Web3 Solana Bootcamp.
- **FOOTBALLER - Inter school level:** Served as a full-time defender for the school football team from 2016 to 2018. Engaged in exclusive Sports Day specials and Inter-House tournaments, showcasing dedication and skill in competitive sports.