

Ashutosh Tripathi

Github: <https://github.com/Ashutoshtripathi1234?tab=repositories>

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Hi, I'm Ashutosh Tripathi currently pursuing Electronics Engineering at Rajiv Gandhi Institute of Petroleum Technology. I'm passionate about learning, teaching and the open flow of knowledge. I want to help build new and innovative things that solve real world problems on a large scale.

I qualified Jee mains and Advanced. I'm well-versed in programming languages such as python, c++, which I use extensively in my projects and research work. I have keen interest in data science, applications of AI/ML especially in IoT networks and computer vision problems, adversarial machine learning and natural language processing. I am working as research intern in Indian Institute of Technology Patna currently and prior completed research work in IIT BHU and GUWAHATI in context of above topics. I'm excited about the potential of AI/ML to transform the world and believe that my skills, knowledge and dedication will allow me to make a meaningful contribution to this. field.

RESEARCH WORK

Indian Institute of technology- Patna

August 2023 - Present

• **Supervisor:** Dr. Sriparna Saha, Associate Prof. IIT- Patna

• Studied about CNN, Federated Learning, Transfer Learning, Ensemble Learning and Inception Network.

• Working on to make a decentralized system using Federated Learning for Cervical Cancer detection where different hospitals can participate as a node and can predict accurately that if a patient has Cervical Cancer or not, also proposing such algorithms that can tackle data, model heterogeneity and communication efficiency in federated learning environment.

Indian Institute of technology- Guwahati

April 2023 - August 2023

Supervisor: Dr. Anirban Das Gupta, Asst. Prof. IIT- Guwahati

• Studied about CNN, transfer learning, image processing techniques, optical character recognition.

• Worked in the field of Natural Language Processing, made a framework that can effectively process the handwritten text, applied image processing techniques, watershed algorithm for character segmentation and got approximately 90% accuracy and used the model trained on EMNIST dataset to predict the character for bad or cursive handwriting.

Indian institute of technology- BHU

October 2022 - March 2023

Supervisor: Dr. Om Jee Pandey, Asst. Prof. IIT-BHU (Applied for publication in the IEEE Transactions on Network and Service Management as second Author)

• Studied about supervised learning techniques, Reinforcement Learning, deep learning and Federated Learning.

• Experimented in real environment first considering UAVs as static and then mobile and simulate a layered UAV based IoT network having concept of edge computing and Blockchain, also proposed DQN and PPO based collision avoidance algorithm to avoid collision with static objects as well as among UAVs when they are moving.

• Finally proposed the novel routing algorithms based on genetic algorithm, bee optimization algorithm and small world network based algorithms to provide high quality of service for health monitoring based on above type of network and mitigate the challenges such as data latency, decreasing of forking event in blockchain, achieving fast consensus, less energy consumption and maintaining high throughput ratio.

PROJECTS

Heart Disease Prediction

Self Project: September 2022- October

<https://github.com/Ashutoshtripathi1234/heart-disease-prediction-using-DNN>

2022

• Studied about deep neural networks.

• This project aims to provide give solution for heart disease prediction for patients if they have heart disease or not. I used deep

neural network for this task and achieved around 92% accuracy and made an API using FastAPI for deployment into cloud.

IoT Face Recognition AI Robot

<https://github.com/Ashutoshtriplathi1234/IoT-face-recognition-AI-robot>

Supervisor: Dr. Sajal Agarwal, Asst. Prof.
RGIPT, Jais: August 2022 - September
2022

- Studied about Arduino and Raspberry Pi, networking protocols, face recognition using Raspberry Pi, Camera module, Bluetooth module etc.
- Designed a smart AI robot and trained using CNN that can recognize a person's face, can recognize that person's voice and thus receive various commands.
- One can also preview live streaming with a camera through face recognition. It can receive various commands for welcoming guests or can also be used for security purposes

Bank Management System

<https://github.com/Ashutoshtriplathi1234/Bank-Management-System>

Self Project: July 2022 - July 2022

- I used C++ Language to establish a new account, change existing account information, see and manage transactions, verify the details of an existing account, delete an existing account, and browse a list of customers in the bank.
- Overall, this project allows you to do financial transactions as if you were at a real bank.

EDUCATION

Rajiv Gandhi Institute of Petroleum Technology, Jais, Uttar Pradesh

2021-2025

B.Tech in Electronics Engineering

- 8.39 CGPA till 4th semester

SARVODAYA VIDYA MANDIR INTER COLLEGE • SIDHAULI-SITAPUR

2020

Class 12th(UP BOARD)

- 86.40 %

SARVODAYA VIDYA MANDIR INTER COLLEGE

2018

Class 10th(UP BOARD)

- 90.0 %

SKILLS

- **Languages:** Python, C, C++
- **EDA Tools:** PSpice
- **Libraries:** Numpy, Pandas, Scikit-learn, seaborn, Tensorflow, opencv, matplotlib, scipy
- **Platforms:** Windows, Arduino, Raspberry Pi, AzureML
- **Others :** Generative adversarial network(GANs), Reinforcement Learning, Federated Learning, Weka, Power BI, .NET, FastAPI, LaTeX.
- **Soft Skills:** Leadership, Event Management, Communication skills (English and Hindi- read, write and speaking)

CERTIFICATIONS

Deep Learning specialization

2023

Coursera

Machine Learning specialization

2023

Coursera

IoT and Embedded systems using Arduino and Raspberry pi

2022

Coursera

POSITION OF RESPONSIBILITY

Classical Physics tutor, Rajiv Gandhi Institute of Petroleum

22 August 2023 - Present

Technology, Jais

I am assigned as the tutor for the Classical Physics course for the academic session 2023-24 by the department of Science and Humanities, RGIPT, Jais. This course is focused on basic engineering applications of electrostatics and magnetostatics in the field of electronics Engg. particularly in field of designing and analyzing the communication systems.

ARPAN, RGIPT SOCIAL CLUB

May 2023 - Present

• Responsible for managing social events and competitions such as blood donation, books distribution, art and sport competitions for students of schools located near RGIPT campus as well as for people of nearby.

Gyanarpan, Project Amethi

September 2022 - Present

• Teaching Mathematics to underprivileged students of class 10 backed by a government scheme called Gyanarpan Project Amethi.

LANGUAGES

English (Full professional proficiency), **Hindi** (Full professional proficiency)