# Pathikreet Chowdhury

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## EDUCATION

**Rajiv Gandhi Institute of Petroleum Technology**
*(An **Institution of National Importance** along the lines of **IITs**)*
*Bachelor of Technology (IDD) in Computer Science and Engineering*

**Indian Certificate of Secondary Education**
*12th:, 2021: 93% & 10th, 2019: 98%*

## EXPERIENCE

**Research and Backend Developer Intern (On-Site)** | *Apollo Hospitals,Research and Innovations*
- **Technology Stack:** Monai, Image-Processing and Machine Learning Algorithms, PyTorch, MlFlow, Node.js, Flask, MySQL, Javascript .
- Working on the detection of heart arrthymia and disease detection from Chest X-Rays, an end to end system to collect and process daily hospital data ,optimize and present them in the Apollo Morning Hurdle Dashboard.
- Working with the Flask, MySQL backend and RESTful APIs of MedMentra(Apollo ERP).

## RESEARCH PROJECT

**Machine Intelligence Framework for detection of Heart Arrthymia Disease using Cleveland Heart Dataset** | *Evaluation in ICOIN* | *ICOIN 2024* | ⭘ | 🔗          *Late Dr. Rahul Kumar*
- **Technology Stack:** Pandas, NumPy, Scikit-Learn, Tensorflow, Keras.
- Evaluated multiple ML models after applying PCA and RFE using various estimators.
- Achieved an impressive accuracy of 98.6 % on test data better than many models present currently.

## MACHINE LEARNING PROJECTS

**Eir - An end to end healthcare platform.** | ⭘
- **Technology Stack:** Tensorflow, Python, Keras, MySQL, EasyOCR, OpenCV, Keras, Flask, Node.js, RestAPI, Javascript.
- Developed a complete modular system to detect 9 diseases as well medical report recognition using Image Processing, OCR, Neural Networks, CNN, various supervised and unsupervised models such as XGBoost, SVM and Decision Trees and Clustering.

**NeuraTradePro - A neural network trained algorithmic trading bot** | *AlgoSwarm 2023 Finalist* | ⭘
- **Technology Stack:** Keras, Algorithmic Trading Tools, Pandas, NumPy, BeautifulSoup, Scikit-Learn.
- Algorithmic trading bot that leverages the power of neural networks and a diverse array of technical indicators to make informed trading decisions in the financial markets.
- Used various candlestick patterns, support resistance functions, RSI, Moving Averages and trained on a custom 10 layer neural network, also LTSM for time series forecasting.

**KAVACH - A community based campus and women safety app.** | *SIH 2024 (ML Modelling)* | 🔗
- **Technology Stack:** Keras, Tensorflow, YOLO, OpenCV, Librosa, MySQL, Pandas, NumPy, Roboflow, Streamlit.
- A Real Time Weapon and Threat detection System built using YOLO using transfer learning, detecting weapons. | ⭘
- A Smart Gate Entry and Access System built using facial recognition (OpenCV,Tensorflow), Streamlit and MySQL. | ⭘
- **VoiceEmoSense**: ML Models and Neural Network , Data Augmentation and MFCC feature selection to accurately detect and analyze emotions in users' voices. | ⭘

**SpamGuardML - a Spam Classifier built using MLflow, NLP and incorporating MLOps.** | ⭘ | 🔗
- **Technology Stack:** Keras, MLFlow, NLTK, Transformers, Pandas, NumPy, Streamlit.
- A Spam Classifier built using MLflow and Streamlit, incorporating NLP with CI/CD (Continuous Integration/Continuous Deployment) and MLOps (Machine Learning Operations) practices for effective and automated management.
- Used various NLP techniques such as lemming, stemming, raw token and vectorization methods such as TF-ID and Bag Of Words for text classification.
- A easy to use UI created by Streamlit for model training, hyperparameter tuning and data feeding to MLFlow runs as well as for user to use the classifier. A neural Network is used to train and all runs and metrics are stored and visualized in MLFlow leading to easy production model selection and retraining.

**LipReader.AI - An end to end ML web app to read lips from videos.** | ⭘
- **Technology Stack:** Tensorflow, Python, Keras, MySQL, Pandas, Flask, Streamlit, Pickle.
- Implemented the famous LipNet research paper with slight changes to the architecture.Also built a streamlit webapp for the end to end implementation.

## FULL STACK DEVELOPMENT PROJECTS

**StylioFit - Virtual Shirt Design Tryout with MERN and Three.js** | 

- **Technology Stack:** React, Three.js, Express.js, Node.js, RestAPI, Javascript, TailwindCSS.
- An interactive website developed using the MERN stack (MongoDB, Express, React, Node.js) and enriched with Three.js modelling capabilities.
- This platform enables users to virtually experiment with diverse shirt designs in a dynamic 3D environment.
- By leveraging customizable prompts, users can fine-tune their preferences and visualize their selections in real-time, providing an immersive and personalized online shopping experience.

**AI Alchemist - My personal blog website** |  | 

- **Technology Stack:** NextJS, Prisma, Express.js, Node.js, RestAPI, Javascript, TailwindCSS,Authjs, MongoDB.
- Designed and built a MERN-based personal blog website for the purpose posting articles about dev , ML and coding.

**Hospital Buddies - A MERN based medical paging system.** | 

- **Technology Stack:** React, Redux, Node.js, Express.js, MongoDB, Stream-chat, RESTful APIs, TailwindCSS.
- A MERN based pager system for hospitals with built in chats , group chat feature,Direct messages and also channel creation.

## SKILLS

**Languages** : C/C++, Python, JavaScript, Typescript, Java, HTML5, CSS3, MySQL, Flask.

**ML Frameworks and Libraries** : TensorFlow, PyTorch, Keras Scikit-Learn, OpenCV, NumPy, Pandas, MLFlow, StreamLit, Seaborn, Matplotlib, Docker, NLTK, Hugging Face Transformers, FastAPI, Google AutoML.

**Development Frameworks and Libraries** : React, Redux, Router, React Hook, Node,js, Express.js, MongoDB, Socket.io, Postman, Nginx.

**Tools** : Git/GitHub, Docker, Google Colab, Kaggle, VSCode, Postman, Roboflow, MlFlow, AWS Sagemaker, Jupyter Notebook.

## ACHIEVEMENTS

**Qualified AWS Udacity Deepracer Scholarship** | *Theme: ML, Neural Network, Reinforcement Learning.*

**Finalist (India Top 30) of the CISCO Thingqubator Cohort 5 2023** | *Theme: ARGUS, ADAS System.* | 

**International Chess Player, State Runner-Up.**

**Playing 11 team member of the RGIPT Football Team represented college in IIT-Kanpur,2022.**

## USEFUL LINKS

 LeetCode |  Codechef |  LinkedIn |  pathikreet.com |  GitHub |  Kaggle|  AI Alchemist.com

## OTHER ACTIVITIES

**OWASP RGIPT Student Chapter**: Head of Membership.

**E-CELL, RGIPT**: Head of Technical Department.

**CISCO Thingqubator RGIPT**: Head of Operations.