ANIRUDDHA CHATTOPADHYAY | 17QE30007

QUALITY ENGINEERING DESIGN AND MANUFACTURING (INDUSTRIAL ELECTRONICS VERTICAL) (M.Tech Dual 5Y)

EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2022	M.TECH Dual Degree 5Y	IIT Kharagpur	8.13 / 10
2016	Indian School Certificate	Indian School Certificate Examinations (CISCE)	97.5%
2014	Indian Certificate of Secondary Education	Indian School Certificate Examinations (CISCE)	92%

COURSEWORK INFORMATION

College Courses : Programming and Data Structures(PDS), PDS lab, Algorithms lab, Data Structure and Algorithms, Probability and Statistics , Signals and Network, High Performance Parallel Programming, Embedded System*
Online Courses : Machine Learning By Andrew NG, Applied AI course* , Machine learning a-z™ * ,deeplearning.ai*   (* - ongoing courses)

SKILLS AND EXPERTISE

- **Programming Languages**- C | C++ | Python | Java
- **Database: Firebase realtime|** MySQL | NEO4j graph database
- **Libraries/frameworks**- Selenium | Django | numpy | matplotlib | pandas | keras | Tensorflow | py2neo | py2exe | pyautogui | seaborn | Metasploit | Nmap
- **Operating System**-Ubuntu | Kali | Windows
- **Tools**- Pycharm | Android Studio | IBM Watson | LATEX | SolidWorks |FireBase | GPU programming(CUDA)

COMPETITION/CONFERENCE

Secured 1st Position At HSBC Oncampus Hackathon on AI, 2018

- Built an intelligent medical chat-bot using **tkinter(GUI)** in python.
- Chatbot takes in the symptom of the user as input and processes that using **Natural Language Processing.**
- The processed input is then put through a **Multi layer perceptron Neural network** that maps it to a keyword(Symptom).
- The Symptom is then searched in **NEO4J graph database** and other relevant symptoms the user may have is asked as cross query to the user.
- Finally using the number of symptoms matched of a particular disease , a conclusive health report is given to the user.

1st Runners Up among 200 teams in AI based onsite hackathon vesAlthon,2019

- The theme of the hackathon was to build AI solutions for social challenges faced by senior citizens, differently abled and kids. The major sponsors were Capgemini, Network Marvels, Adapty and NVIDIA. The App got nation wide media coverage by Times Of India,Hindusthan Times,India Today.
- Built two android applications (in **Android Studios**) one for the elderly people and one for the caregivers.
- The app for the elderly people had a **neural net trained on the MOBIACT dataset** stored as a **tensorflow lite** model in the phone to detect falls and alert the caregiver.
- Used **google Mobile Vision API** to detect the emotion of the person and keep a record of the emotions with a timestamp in the application of the caregiver.
- Used **IBM Watson** to create a **personalized multilingual voice controlled chatbot** for the elderly person. The chatbot is automatically updated with the mood of the person and accordingly fine tunes the conversation with the elderly person. If the person in sad ,it can automatically play funny videos or a nostalgic song to cheer up the person. It can also look up for doctors nearby, search for hospitals, give a call to any of the contacts including the caregiver.
- The app keeps track of medical history, allergy history as well as give medicine reminder to both the elderly as well as the caregiver. The medicine to be taken can be added as a image and the app will automatically update its database in **FireBase** with the name of the medicine using **text recognition in images**.
- **Real time Location tracking** as well as a **pedometer** is built in as features of the app.

Got an AI internship opportunity at India Opportunity Advisors

Took part in a competition on internshala hosted by Indian Opportunity Advisor on Natural language Processing and successfully got selected for the internship out of more than 800 participating students.

4th place finish in the code-o-soccer competition

Participated in code-o-soccer in Kshitij 2018 and secured 4th place in the competition.

Nationwide Finalists(top 8) NEC Transport Hackathon

Made an android app that allows users to do realtime bus/auto tracking and also gives them estimate time of waiting at the bus stop along with estimate journey time so that they can optimize their journey schedules accordingly. It also gives them the option of choosing from either cheapest or fastest means of transport available.Gives them all possible combinations of travelling options.

PROJECTS

Air Cargo Shipment optimization under Prof. Manoj kumar Tiwari, Department Of Industrial and Systems Engineering,May 2019-July 2019

Developed an linear programming model for minimizing the cost of an air cargo shipment using concept of Integration,consolidation and deconsolidation. Solved the model using a heuristic **ant colony optimization** algorithm in python. This significantly increases the profit of the freight forwarders.

Construction and Analytics of Academic Genealogy Knowledge Graph using NEO4j, March 2019-Present

Had to Web Scrape and make a dataset from acadtree. On the collected dataset had to build an **Knowledge Graph** with more than 1.7 million data points. Actively working to incorporate AI to check authenticity of relationships of the Knowledge Graph.

Understanding University ranking using deep learning under Prof. Manoj kumar Tiwari, Department Of Industrial and Systems Engineering,May 2019-Present

Using a machine learning based ranking algorithm and deep learning on the scrapped QS university ranking parameters to understand the intricacies of how a university is ranked. Attempt to simulated how to increase a universities rank based on findings of the experiment.

Automated the Teaching Feedback System

- Self project to automatize the teaching feedback system for IIT Kharagpur students.
- Used **Selenium** in python to automatize the web browser action and **Tesseract OCR** to break the captcha code.
- The code takes 50-60 seconds seconds to complete the entire review filling and auto downloads the admit card of the exam. Manually it takes 20 to 30 minutes to complete filling the review and is very tidious.

Using Generative Adversarial Networks(GAN) to create artificial data

Doing a self project to create artificial images of hand written digits from the MNIST dataset using GAN and study the correlation with the artificially created data and overfitting. Also intend to apply TSNE and PCA to the artificial images and record the observable changes in the result with respect to the original images.

INTERNSHIPS

Lubble Technologies Private Ltd, (2 October - till date)

Android and django developer at Lubble technologies where I work from home. I am responsible for introducing and augumenting vital features to the Lubble android application. I also work to **create APIs** for Lubble using Django and schedule CRON script to keep the backend database of lubble updated.

Kharagpur Winter Of Codes,December 2018-January 2019

Succesfully completed an Open Source project(MEDIUM GRABBER) arranged by Kharagpur Open Source Society(KOSS) under Mentor Mr.Abhishek Singh. This is a 5 week long open source mentorship program named Kharagpur Winter of Codes(KWoC) aimed at training students for the Google Summer of code(GSoc).

College Doors, April 2018-July 2018

Interned at a edu-startup 'College Doors' in the first year summers where I was given the task of content development.

WORK EXPERIENCES

Product Design

•Designed a watch that gives the exact location of a person during rescue operations as a part of the product design team at Radha Krishnan hall of residence.
•Designed a product named AlcoLoc for open IIT product design competition. It prevents a person from driving if alcohol content in his breadth is more than the legally allowed percentage.

ENTREPRENEURIAL EXPERIENCES

Co-founded startup under the name SharpCookie

Made a first of its kind guide book for the incoming freshers of IIT Kharagpur consisting of solved past year questions. It went on to make a revenue of around 2lakh with a profit percentage of 100%

AWARDS AND ACHIEVEMENTS

•Secured an **All India Rank of 10(2016)** in ISC examination among more than 1.6 lakh candidates. Stood **3rd in** West Bengal and **topped** my school(among more than 450 students) and **jointly topped** my district on Indian School Certificate (ISC) examination.

•Former receipient of the **Inspire Scholarship**.

•Changed my Department at the end of first year from Geology and Geophysics to Quality Engineering Design and manufacturing ,Industrial Electronics Vertical.

POSITIONS OF RESPONSIBILITY

Head at Institute Wellness Group, IIT Kharagpur

Institute Wellness Group,IIT Kharagpur was founded with the intention of securing and elevating the mental health of the institute.
•Conducted flagship events like 'Thanking you through Thank You notes', 'Dinner With Chefs' that got media attention.
•Responsible for conducting refresing and recreational events like 'Agle sem phod denge', 'Echo', 'Ethnic Day' etc

Leader of National Service Scheme (NSS) unit 4

Did more than 120 hours of volunteering work for NSS and was nominated the first year camp leader for unit 4 and then the unit leader in my second year. ALso received the best volunteer award for my contributions in the camp.

EXTRA CURRICULAR ACTIVITIES

•Part of **Product Design team** at Radha Krishnan Hall of Residence.
•Participated in coding competition 'OVERNITE' in kshitij.