DEEPAK KUMAR | 21CS60R10

COMPUTER SCIENCE AND ENGINEERING

EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2023	M.TECH	IIT Kharagpur	7.96 / 10
2020	B.E.	Savitribai Phule Pune University	7.4 / 10
2015	Board Exams	Board Of Secondary Education, Rajsthan	83.80%
2013	Board Exams	CBSE	8.4 / 10

COURSEWORK INFORMATION

Algorithm Design &Analysis | Machine Learning | Digital Circuits| Programming &Data Structures | Linear algebra for AI and ML | DBMS | Complex Network | Operating System | Computer Network | Data analytics

SKILLS AND EXPERTISE

Programming Languages : C, C++, Python
Technical Knowledge : Machine / Deep Learning, SQL, Inter Process Communication, Operating Systems, Database Management Systems.
Libraries : Numpy, Pandas, Matplotlib, Pytorch, STL, PLY (Lex/Yacc).
Others : Git, Jupyter, Colab, VSCode, Sockets Programming, Thread Programming

PROJECTS

M.Tech Thesis | Analysis of remote sensing images using machine learning / deep learning | *Prof . J. Mukhopadhyay*
CNN | RNN | LSTM | Image processing | Ongoing
- Genrate ground truth using QGIS and Google Earth Pro to verify CNN results.
- Use various time-series Model such as RNN, LSTM etc. for forecasting.
- Study of NDBI, NDISI and NDII indices for extraction of Urban Impervious Surface using Landsat 8 Imagery.

Course Project | Covid-19 Web Scrapper | *Prof. A. Mukherjee*
Python | Web Crawling | Lex/Yacc | Spring'22
- Designed interface for extracting all relevent covid related information from Worldometer website using PLY.
- Extract information like total deaths, total cases, percentage change in covid cases between two dates, etc.
- Find most similar country based on percentage change in total cases, deaths between any two given dates.

Course Project | Online File Editor with Collaboration | *Prof. A. Mukherjee*
Socket Programming | C | FTP | Spring'22
- Built a console based online file editor with collaboration features by using FTP on top of TCP/IP sockets.
- Built several server functionalities like viewing active clients,uploading a file, providing access privilege to another client,reading,inserting and deleting lines from a file.
- Managed multiple client requests like inviting another client to grant read or write acccess using semaphores.

Course Project | Lift Simulation using Semaphores | *Prof. Pallab Das Gupta*
Computing Lab | Synchornization using semaphores | autumn'21
- Implemented lift simulation with floors and multiple users using semaphores and mutex locks.
- All users and lifts are synchoronized properly so that no collision occurs between them.
- Proper visualization is shown about what actions are taken in which floor and lift through command line animation.

Course Project | Classifier to identify land use and land cover | *Prof. A. Mukherjee*
Computing Lab | Machine Learning | CNN | spring'22
- Created a 2D convolutional neural network using torch.nn.conv2d as a basic component. Trained it end to end.
- Used early stopping technique, with a limit of k epochs of no improvent in validation accuracy to finish training.
- Finetuned the Resnet (Residual Networks) which is trained on the ImageNet Dataset, on the EuroSAT dataset.

POSITIONS OF RESPONSIBILITY

Teaching Assistant|PDS Lab
- Currently working as a Teaching Assistant of Programming and Data Structures - CS19003(Autumn 22).
- Responsible for conducting tutorials and helping students understanding the basics of PDS.
- Responsible for designing problems for assignments and grading them for a class of 100 students.

AWARDS AND ACHIEVEMENTS

- Achieved 99.26 percentile in **GATE ECE 2021**
- Cleared **JEE ADVANCE 2016** with Rank 3914(OBC)
- Selected for **"Ideas for nav bharat nirman"** an event of **IISF 2017**

CERTIFICATIONS

Hackerrank Problem Solving Certificate
Hackerrank SQL Certificate
NPTEL CERTIFICATION (Elite) in Programming in C (Roll No. : NPTEL17CS43S2630458)