SHUBHAM KUMAR | 20MI10052

MINING ENGG.(B.Tech 4Y)

EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2024	B.TECH	IIT Kharagpur	8.56 / 10
2020	SBTE	SBTE, Patna	77.73%
2017	AISSE	V V I Public School, Aurangabad	8.8 / 10

INTERNSHIPS

Software Development Intern | Optimized Electrotech Pvt. Ltd. | Bengaluru (Onsite)　　　　**May'23 - Jul'23**
Objective:-Enhance the company's camera software 'O->Sight' by integrating a novel passive ranging capability using a monocular camera
- Leveraged proficiency in **OpenCV** and Object-Oriented Programming (**OOP**) principles to design and implement a dynamic system for drawing range lines
- Implemented advanced **C++ algorithms** and integrated key data structures and algorithms (**DSA**) techniques, facilitating accurate range determination
- Commenced by implementing **dynamic programming** techniques to simplify the 'O->Sight' codebase, resulting in reductions in time and space complexity
- Conducted testing on simulated and **real-world imagery**, achieving accurate distance measurements and visualizing range values on the image output
- Led the integration of a range estimation algorithm leveraging trigonometric principles into the 'O->Sight', enhancing object distance accuracy of **50-100 m**

Machine Learning Intern | Everest Fleet Pvt. Ltd. | Mumbai　　　　**Apr'23 - Jun'23**
Objective:-Utilizing machine learning techniques to analyze, model, and predict driver churn patterns among a large dataset of drivers
- Gathered data of **72k** drivers from **Uber**, conducted **data cleaning**, and performed comprehensive analysis to uncover underlying causes of driver churn
- Implemented **sequential model** using Keras and TensorFlow library with **Adam Optimizer** and assessed model via cross-validation, confirming reliability
- Developed and executed a **machine learning model**, employing historical driver data to construct a **sequential model** that predicts driving pattern
- Achieved an impressive **~89%** accuracy, skillfully utilizing **Min-Max scaling** for feature normalization to predict driving patterns and analyzed driver churn
- Utilized model predictive analytics to forecast fluctuations in driver activity, and enabling the formulation of proactive strategies for mitigating attrition

Machine Learning Intern | Suvidha Foundation | Nagpur　　　　**Feb'23 - Mar'23**
Objective:-Enable accurate and insightful sentiment analysis of diverse textual data, supporting Suvidha Mahila Mandal's broader goals
- Implemented sentiment analysis utilizing advanced NLP techniques and **Hugging Face's BERT-based model**, achieving accurate and insightful results
- Demonstrated expertise in web scraping and extracted valuable text data from diverse online sources for sentiment analysis with Hugging Face platform
- Utilizing the capabilities of the **BeautifulSoup** library in conjunction with the tokenizer and AutoModelForSequenceClassification from Hugging Face
- Optimized Hugging Face's BERT models to effectively capture subtle language nuances, enabling **sentiment analysis** on a wide range of **textual data**
- Efficiently employed **Pandas** for data processing, enhancing datasets with insightful **sentiment scores** derived from the Hugging Face BERT model

PROJECTS

Machine Learning Pipelines with Azure Machine Learning Studio | Coursera　　　　**Jul'23 - Aug'23**
- Demonstrated expertise in building end-to-end machine learning pipelines using **Azure Machine** Learning Studio, emphasizing **binary** classification tasks
- Applied practical **data preprocessing techniques**, including feature selection and missing value handling, to enhance data quality and optimize model
- Successfully tackled class imbalance by skillfully applying **upsampling techniques**, resulting in a more balanced and dependable predictive model
- Executed training, **fine-tuned boosted decision trees**, implemented hyperparameter tuning, and evaluated model performance via **AUC-ROC** metrics

Search Engine Optimization (SEO) with Squarespace | Coursera　　　　**Jul'23 - Aug'23**
- Developed a compelling site title and description, reviewed the Squarespace SEO checklist, and seamlessly connected the site to **Google Search Console**
- Provided essential business and location information within Squarespace, facilitating the direct launch of a Google My Business account from the platform
- Developed a new **FAQ page**, strategically optimizing meta data, headers, and page URLs for enhanced search visibility and **improved user experience**
- Activated **AMP** in Squarespace, included pertinent images with alt tags, **interlinked**, and optimized metadata and URLs for an engaging blog post

Development of Production Scheduling Software for Mine Planning (BTP) | Prof. Biswajit Samanta　　　　**Aug'23 - Present**
- Conducting research through academic papers and articles to gain understanding of **optimization algorithms** in the context of mine scheduling software
- Analyzing various approaches, including **linear programming**, to identify potential techniques that can be applied to develop the scheduling software
- Investigating industry-standard **UI/UX** design principles to create an intuitive and exceptionally user-friendly interface for the **Scheduling** software users

COURSEWORK INFORMATION

Computer Science / MOOCs : Programming and Data Structures (+Lab) | Algorithms in C | Data Structure in C | Deep learning with Python | Text Summarization with BERT | Supervised Machine Learning: Regression and Classification | Unsupervised Learning, Recommenders, Reinforcement Learning
Math / Finance : Probability and Statistics | Linear Algebra, Numerical and Complex Analysis | Economics | Quantitative Decision Making
Others : Basic Electronics (+Lab) | Electrical Technology | Computational Methods and Mine Instrumentation | Rock Mechanics (+Lab)

POSITIONS OF RESPONSIBILITY

Student Mentor | Student Welfare Group, IIT Kharagpur　　　　**Sep'22 - Jul'23**
- Mentored **5 freshers** from the 2022 batch as a dedicated participant in the Student Mentorship Program initiated by the Dean of Student Affairs
- Initiated regular **meetings with mentees**, facilitating their seamless transition into IIT Kharagpur life, addressing concerns for a positive academic start
- Created and shared a comprehensive guidebook or **digital resources** that outlined the diverse range of extracurricular options available on campus

SKILLS AND EXPERTISE

Languages / Libraries : C | C++ | SQL | Python | MATLAB | HTML | CSS | Pandas | Scikit-learn | Keras | TensorFlow | BeautifulSoup | PyTorch
Softwares / Tools : Visual Studio Code | Visual Studio | MySQL | ML Studio | MS Azure | GitHub | MS Office | LTspice | AutoCAD | Phase 2 (FEM)

AWARDS AND ACHIEVEMENTS

- Earned a **Department Rank of 6**, underscoring my commitment to academic excellence and determination to excel in my field
- Distinguished for exceptional academic performance, underscored by the remarkable **SGPA** of **9.42**, reflecting a commitment to excellence in learning
- Honored to be awarded the IIT Kharagpur **Merit-cum-Means scholarship twice**, which acknowledges my academic excellence and financial need

EXTRA CURRICULAR ACTIVITIES

- Contributed as a member of the **bronze-winning** team to the illumination project at Rajendra Prasad Hall, IIT Kharagpur, involving over **750+** students
- Active participation in community initiatives, including involvement in the **Blood Donation** Drive organized by Patel Hall of Residence at IIT Kharagpur
- Enthusiastically participated in **NSO Health and Fitness** activities, contributing to holistic campus wellness and promoting healthy lifestyles