

# Sourav Dey

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## WORK EXPERIENCE

- Alphagrep Securities** On-Site
  - SDE Intern** *Feb 2024 - Present*
    - Building a Slack Bot with NLP/LLMs for Automating Regular Tasks::** Integrate Natural Language Processing (NLP) or Language Models (LLMs) like GPT-3 into your Slack bot to understand and respond to user queries, streamlining workflows by automating tasks such as scheduling meetings, fetching information, setting reminders, and allocating JIRAS.
    - Development of Ansible Scripts for Automation::** Utilize Ansible playbooks to define tasks such as installing web server software (e.g., Apache, Nginx), including synchronizing Python environments on host machines. Implemented Slack alerting in playbooks to notify specific channels/users on task failure, utilizing Slack APIs for seamless communication.
    - Developed Python Scripts For Trading Strategies:** Created Python scripts to define trading strategies by analyzing market data, determining buy or sell signals based on criteria such as moving average crossovers, and implementing risk management rules.
    - Developed Automated System for Anomaly Detection in Trade Data::** Designed an automated system for anomaly detection in trade data, incorporating Gaussian-based methods, Isolation Forest, LOF, and KNN algorithms. Utilized statistical techniques to improve detection accuracy and uncover unusual patterns or deviations from the norm, ensuring comprehensive anomaly identification.
    - Tools and Technologies:** OpenAI LLMs, Gemini, Ansible, Linux, Python, Flask ,REST APIs, MySQL , Bash, Statistics, KNN
- Deutsche Bank** On-Site
  - SDE Intern** *Jun 2023 - August 2023*
    - Database Design And SQL Scripts:** Designed a streamlined database schema with ER diagrams, created tables, and authored SQL scripts for table creation and user permissions.
    - API Development by Springboot:** Designed and developed REST APIs to support **CRUD** operations and Implemented endpoints using **Springboot**.
    - Authentication Implementation and Email Retrieval: Implemented SSO integration**, enabling seamless authentication across multiple applications. Retrieved user email from SSO headers to populate user profile and email column in database.
    - Unit Testing: Designed and Written Unit tests** for the Rest APIs using Mockito and JUnit-5 in Java.
    - Tools and Technologies:** JAVA, Springboot, OOPS , MySQL , Mockito and JUnit-5, Bit Bucket
- Amazon ML Summer School** Remote
  - ML Intern** *Jun 2022 - July 2022*
    - Classical ML:** Gained comprehensive insights into key ML topics, including deep neural networks, supervised learning, probabilistic graphical models, and unsupervised learning, Reinforcement Learning, Causal Inference, etc. through engaging modules delivered by Amazon Scientists.
    - Practical ML:** Developed a strong foundation in essential ML technologies, combining theoretical knowledge with practical applications in real-world scenarios.
    - Tools and Technologies:** Supervised , Unsupervised learning, deep learning, NLP ,Tensorflow.

## EDUCATION

- Indian Institute Of Information Technology Allahabad** Uttar Pradesh, India
  - Bachelor of Technology - Information Technology; GPA:9.00** *Nov 2020 - June 2024*
    - Courses:** Operating Systems, Data Structures and Algorithms, Object Oriented Methodology, Machine Learning(ML), Database Management System, Natural language Processing(NLP).
- D.A.V Public School Moonidih** Dhanbad, Jharkhand
  - Class 12th CBSE; Percentage: 96.4 %** *Apr 2018 - Mar 2020*
- D.A.V Public School Moonidih** Dhanbad, Jharkhand
  - Class 10th CBSE; Percentage: 96 %** *Apr 2012 - Mar 2018*

## SKILLS SUMMARY

- Technologies:** Machine Learning, Deep learning, NLP, optimizations, Computer Vision, Image Processing, multi-threading
- Languages:** Python, C, C++, Java, SQL, shell scripts(Bash)
- Frameworks:** sci-kit-learn, Keras, TensorFlow, PyTorch, NLTK, SpaCy, Flask, Sreamlit ,Pinecone
- Tools:** Canva, Weka, GIT, MySQL, Linux ,Langchain
- Soft Skills:** Leadership, Creativity, Writing, Public Speaking, Time Management, Problem Solving, Communications

## PROJECTS

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- **Enhancing COVID-19 Detection from CT-Scan Images through Federated Learning and Explainable CNN Models** : Led project to enhance COVID-19 detection from CT-scan images using Federated Learning and Explainable CNN models. Improved accuracy through decentralized training and provided transparency with interpretable models for better healthcare decision-making.  
**Tech:** CNN Models(Vgg-19,Vgg-16),Transfer Learning,Federated Learning, XAI(Lime,Grad-Scam),Natural Language Understanding, Neural Networks, Computer Vision
- **What 2 Watch - Interactive Movie Recommender System** : A web application that will provide the recommendation of the movies that are similar to the ones you have been watched in the past. Also it provides many interesting facts about the movies and moviemakers. Made over 10000+ movies data scrapped from different websites.  
**Tech:** Python, Streamlit, Matplotlib, NLP
- **Newlify - An Image colorization web-app**: A web application which can colourize a black and white image. It also provides an interactive platform to learn different Image Processing operations.  
**Tech:** Python,Tensorflow,OpenCV, Streamlit,Deep Learning,Machine Learning,Keras
- **TrendyNews - Model to find Trending News**: This project aims to extract the trending financial news from daily news articles using Natural Language Processing techniques. As a result we got hottest financial news headlines of the month along with thier stories.  
**Tech:** Python,Tensorflow,OpenCV, Streamlit,Natural Language Processing,nltk,Machine Learning,Keras
- **Polygon Area Calculator** : An interactive desktop application that will dynamically calculate the area of a four sided resizable polygon along with edge length and angles.  
**Tech:** Java ,Java Swing

## RESEARCH AND PUBLICATIONS

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- **Sourav Dey, Bagesh Kumar, Aayush Talesara, Shubham Kumar, Amritansh Mishra, O. P. Vyas**: Object Detection for Autonomous Vehicle in Hazy Environment using Optimized Deep Learning Techniques, **IC3-2022: Proceedings of the 2022 Fourteenth International Conference on Contemporary Computing** 2022
- **Sourav Dey, Bagesh Kumar, Utkarsh Garg, Mehta Soham Prakashchandra, Amritansh Mishra, O. P. Vyas**: Efficient Real-time Traffic Management and Control for Autonomous Vehicle in Hazy Environment using Deep Learning Technique, **2022 IEEE 19th India Council International Conference (INDICON)** 2023
- **Research Project: Implemented Modified Sequential Minimal Optimization Technique for Support Vector Machines**: Modification in SMO reduces the training time of Support Vector Machines by approximatly 60% .  
Work in Progress: Applying parralization in modified SMO which further reduces the training time. 2023

## HONORS AND AWARDS

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- Secured All India Rank of 62 in Amazon ML challenge 2023.
- Secured All India Rank of 12 in MSCI Developer Challenge India 2022 among 5k+ candidates.
- Selected for Amazon Machine Learning Summer School 2022 among 10k+ candidates.
- Secured All India Rank of 131 and institute rank 2 in Codekaze 2021 based on Data structures and algorithms.
- Secured All India Rank of 59 in Football Hackathon – Data-Driven Player Performance Assessment on Machine Learning among 4500+ registered candidates.