Shubham Dahatonde

Computer Science Engineer

Email - shubham2262v@gmail.com LinkedIn - Shubham Phone no - +919359544474

Results-driven professional with expertise in IoT, AI, and healthcare technologies, specializing in patent-backed innovations such as healthcare monitors, robotic farming systems, and secure satellite communication. Proven leader in AI-integrated research projects that also focus on blockchain, and edge computing. Skilled in delivering real-time data-driven solutions and advanced ML algorithms to optimize performance across industries. Enthusiastic and collaborative team player with a strong work ethic who is eager to learn and contribute to a fast-paced tech-driven and research-intensive learning environment.

EDUCATION

Bachelor of Technology (Hons) in Computer Science Engineering (IOT and Intelligent Systems) CGPA 8.44/10
Manipal University, Jaipur, India **2022-2025**

Diploma in Computer Engineering 89.66%
2nd Rank
Viva College Of Diploma Engineering and Technology, Maharashtra, India **2019-2022**

CORE SKILLS

Data Structures	Technical Writing	SQL	JavaScript	Project Management
Project Planning	Documentation and Control	JavaScript	Android Development	Web Development
Patent Filing	Application Development	Leadership	Python	Data Analysis
Machine Learning	Artificial Intelligence	Teamwork	Critical Thinking	Automata Theory
Design and Analysis of Algorithms (DAA)		Natural Language Processing (NLP)		Deep Learning

EXPERIENCES

Reseacher **Jan 2025 – June 2025**
Indian Space Research Organization (ISRO), India

- Developed Securing Satellite Command Systems using offline voice recognition with authentication to enhance command security.
- Built an Automated Minutes-of-Meeting (MOM) System with speaker identification and live transcription for internal meetings.

Scientist Intern **Dec 2023 - Jan 2024**
Indian Space Research Organization (ISRO), India

- Gained hands-on experience in Unix-based systems and security protocols during internship at the Indian Space Research Organization (ISRO), focusing on dynamic linking of remote system patches for mission-critical applications.
- Led a team of interns in troubleshooting complex Unix operations, facilitating discussions to address unexpected technical challenges, showcasing effective problem-solving and adaptive strategies under pressure.

PROJECTS

Smart Plant Watering System **August 2023 - October 2023**
Designed and implemented an IoT-based smart plant watering system with integrated sensors, actuators, and a user-friendly mobile app for remote monitoring and control, achieving significant water savings and improved plant health through automated, data-driven irrigation.

Neural Pulse: Stress Detection via Deep Learning and ECG Signals **March 2024 - April 2024**
Developed a high-accuracy deep learning model for stress detection using ECG signals, trained on the WESAD dataset, integrating biomedical signal processing with AI to overcome data variability challenges and demonstrating the potential of AI-enhanced IoMT systems for real-time health monitoring and personalized patient care.

AI Summary and Audio Translation **August 2023 - October 2023**
Developed a Python application with a Tkinter GUI for efficient PDF text summarization and translation using PyPDF2, NLTK, gTTS, and Googletrans, enabling users to upload PDFs, extract and summarize text, translate content into Hindi, and download audio, text, and image summaries demonstrating advanced skills in Python, GUI development, and text processing.

Smart Home Automation **September 2023**

Designed and implemented a centralized smart home automation system using MQTT and NodeMCU with custom firmware, enabling seamless control and communication between multiple IoT devices, along with remote monitoring and control via intuitive mobile and web interfaces to enhance automation, responsiveness, and user experience.

Virtual Assistant Using JavaScript **July 2022 - August 2022**

Developed a virtual assistant using JavaScript with a conversational UI to automate tasks via voice and text commands, integrating APIs for real-time weather, news, and task scheduling to deliver intuitive, responsive user interaction and enhanced functionality.

Voice-Controlled Car with Obstacle Detection **February 2022 - Mar 2022**

Engineered a voice-controlled car prototype with real-time obstacle detection and collision avoidance, integrating advanced sensors and custom software for interpreting voice commands, and designed a user-friendly interface demonstrating expertise in embedded systems, sensor integration, and voice recognition technology.

PATENTS AND RESEARCH

Design Patent in AI for Education (UK)
Registered: 6381805(https://www.registered-design.service.gov.uk/find/6381805)
Registered a design patent focused on AI-driven educational tools and methodologies, contributing to the development of intelligent solutions that enhance learning outcomes, user engagement, and personalized education for diverse student populations.

Design Patent in Health Monitoring Wearable Device (Australia)
Registered: 202416642(https://search.ipaustralia.gov.au/designs/search/details/202416642?s=326158fa-eca8-45d8-8063-2361e23ef89a)
Registered a design patent for a compact, ergonomically optimized wearable device integrating advanced sensors and real-time algorithms for continuous monitoring of vital health parameters, promoting proactive health management while balancing aesthetic appeal and functional efficiency for broad user adoption.

A Method And A System For Real-Time Estimation Of Actual Evapotranspiration (Aet) Using A Drone-Based Multi-Sensor System With AI Integration (India)
Published: ApplicationId((202511055833) (https://iprsearch.ipindia.gov.in/PublicSearch/)
Published patent for a drone-based AI-integrated system for real-time estimation of Actual Evapotranspiration (AET), enhancing irrigation efficiency and precision agriculture. Developed an intelligent multi-sensor framework combining edge computing, satellite imagery, and machine learning (CNN, XGBoost, RF) for crop stress detection and water resource management.

Advanced Security Framework for Satellite Communication Systems (India)
Published: ApplicationId((202411067962)(https://iprsearch.ipindia.gov.in/PublicSearch/)
Developed and published a patent for an advanced security framework for satellite communication systems, integrating tamper-evident designs, shielding techniques, and AI-powered sensors for real-time threat monitoring, enhancing the integrity and resilience of critical satellite infrastructure.

Intelligent Robotic Farming System (India)
Published: ApplicationId((202411067963)(https://iprsearch.ipindia.gov.in/PublicSearch/)
Developed an Intelligent Robotic Farming System integrating advanced sensors, actuators, and AI-driven algorithms for real-time monitoring and automation, optimizing irrigation and fertilization with precise recommendations, and enabling remote management via a mobile app using Zigbee, LoRa, and Wi-Fi communication protocols.

Blockchain-Enhanced IoT Smart Healthcare Monitoring Device for ICU Patients (India)
Published: ApplicationId((202411067403)(https://iprsearch.ipindia.gov.in/PublicSearch/)
Developed the Secure Healthcare Platform for Patients in ICU (SHPI), integrating blockchain, edge computing, and advanced sensors for real-time, secure patient monitoring, with AI-driven early intervention, cryptographic data protection, and a smart contract-based role-access system leveraging 5G for seamless interoperability and enhanced care quality.

Securing Satellite Command Systems: An Offline Voice Recognition Approach with Authentication (Germany,EU)(https://drive.google.com/file/d/17Ozfqf0YbgQO_ykMjqEuNOXMJ7gQkoTC/view?usp=share_link)
UnderProcceding at the Symposium on Small Satellites for Earth System Observation 2025(German Space Agency (DLR), European Space Agency (ESA), and TU Berlin.)
Developed a secure offline voice command system for satellite testing using Wav2Vec2.0 for high-accuracy speech recognition and TDNN-based x-vectors for speaker verification, achieving 40% latency reduction and enhanced protection against cyber threats through offline operation and immutable audit trails.

Enhancing Ship Detection on Satellite Images with Modified DeepLabV3+
Published (IEEE)(https://ieeexplore.ieee.org/document/10947816)
Developed an enhanced ship detection approach using a modified DeepLabV3+ model, improving accuracy and reducing false positives in satellite imagery, with optimized architecture for robust performance in diverse maritime conditions, advancing remote sensing applications in maritime surveillance.

Enhanced Building Footprint Extraction from High-Resolution Satellite Imagery Using U-Net++
UnderProcceding(IEEE)(https://drive.google.com/file/d/1DwbkOQmK693StIPkRbjEWjCDQno3WSp/view?usp=share_link)
Engineered a U-Net++ model for extracting building footprints from high-resolution satellite imagery, achieving a mean IoU of 0.8199 and accuracy of 0.9014, enhancing segmentation precision in complex urban areas and contributing to advancements in remote sensing and geospatial analysis for urban planning.

AI-Driven Space Debris Detection and Trajectory Prediction for Enhanced Safety at Bhartiya Antriksh Station
UnderProcceding(IEEE)(https://drive.google.com/file/d/1AkQSuQuYX23xeiuVt_qp_Yrutg9VIIM/view?usp=share_link)
Developed a real-time system for space debris detection and trajectory prediction using Two-Line Element (TLE) data, integrating SVM and neural networks for accurate detection, and employing ARIMA and LSTM models for precise motion prediction, enhancing collision avoidance and ensuring operational safety for Bhartiya Antriksh Station (BAS).

POSITIONS OF RESPONSIBILITY

Student Convener **February 2024 - April 2024**
ICICV-24 International Conference, Manipal University, Jaipur, India
Led the organization of the Springer-sponsored ICICV-24 International Conference, coordinating with international speakers and cross-functional teams to manage technical and logistical aspects, enhancing leadership, organizational, and networking skills while gaining insights into AI and Intelligent Systems research.

Technical Secretary **June 2023 - May 2024**
Turing Sapiens Club, Manipal University, Jaipur, India
Led the organization of workshops and technical events by coordinating with faculty, speakers, and participants, fostering collaborative environments, conducting industry research for content development, and ensuring alignment with institutional goals to deliver impactful educational experiences.

Head of Projects and Research **December 2022 - May 2023**
MUJ ACM SigAI Chapter, Manipal University, Jaipur, India
Led a multidisciplinary team in developing an advanced stress detection system using ECG signals, fostering collaboration, overcoming challenges like data inconsistency, and delivering a solution that outperformed existing methodologies, while managing resources, timelines, and project deliverables to ensure successful completion.

Head of Projects **December 2022 - May 2023**
MUJ ACM SigBed Chapter, Manipal University, Jaipur, India
Spearheaded project planning, design, and scheduling for large-scale initiatives, managing budget allocation, resource optimization, and performance assessments to ensure timely completion, high-quality outcomes, and alignment with organizational goals.

EXTRA-CURRICULAR INVOLVEMENTS AND ACHIEVEMENTS

- Dean's Excellence in Research for year 2025
- Dean's Excellence in Innovation for year 2024
- Achieved Top 10 ranking in ISRO's Bhartiya Antriksh Hackathon — July 2024
- Secured 1st Place in Smart India Hackathon (Internal) — October 2024 and October 2023
- Pre-incubated a startup to advance innovative solutions — October 2024
- Ranked Top 10 in ACM MUJ Hacks 8.0 Hackathon — September 2023
- Awarded 3rd Place in ACM Elicit Project Expo (MUJ) — September 2023
- Earned 2nd Place in ACM SIGFEST Project Expo (MUJ) — March 2023

ONLINE COURSES AND CERTIFICATIONS

- Cisco ITN — March 2024
- Problem Solving (HackerRank) — November 2023
- Certified in Java, Python (HackerRank) — October 2022
- H124 - Red Hat System Administration I 9.0 — March 2023
- Database Foundation (Oracle Academy) — March 2023

DECLARATION

I hereby declare that the information provided above is true and correct to the best of my knowledge and believe