GOUTHAM A S

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EDUCATION

Indian Institute of Technology, Jodhpur **Aug 2023 – May 2027**
Bachelor of Technology, Electrical Engineering, CGPA: 7.36

CBSE Board **2023**
Senior Secondary, 97.8%

ICSE Board **2021**
Secondary, 96%

EXPERIENCE

Bash/CLI Developer Intern | AfterQuery (YC W25) | **Sept 2025**

- AI Benchmark Engineering: Generated high-complexity DevOps and SRE scenarios (Kubernetes, Terraform, Docker) to benchmark and train frontier LLMs, contributing essential data to the Terminal-Bench dataset.
- Infrastructure Simulation: Devised realistic, multi-step terminal workflows requiring complex command chaining (10 steps) and isolated Docker environments to evaluate agentic reasoning capabilities.
- Rigorous Validation: Conducted deterministic Python test suites (Pytest) for CLI tasks, achieving 100% reproducibility against Oracle agents while adhering to strict 11-point quality compliance standards.

Inter IIT Tech Meet 13.0 | Kalyani Bharat Forge, Autonomous Swarm Navigation | **Dec 2024**

- Built a centralized intelligence system for robot **swarm navigation**, achieving a **35% reduction in pathfinding latency** in unpredictable environments through optimized path-planning algorithms.
- Pioneered a dual-layered architecture integrating **reinforcement learning** for path planning and **YOLOv8 Nano** for real-time object detection, improving obstacle avoidance accuracy by **22%**.
- Enhanced swarm responsiveness by **20%** via centralized communication using **MongoDB**, enabling efficient coordination among 10+ robots by conducting **50+ simulation runs** in the **Gazebo** environment with TurtleBot Burger.

PROJECTS

Project Raseed | AI-First Receipt Intelligence Engine with Google Wallet Integration | **Jul 2025 – Aug 2025**

- **Automated Multimodal ETL**: Architected a vision-based ingestion pipeline using Gemini 1.5 Flash and Pandas, achieving 100% automated extraction of unstructured receipt data (granular line items, merchant, tax) into a normalized SQLite schema
- **Secure Wallet Integration**: Engineered a server-side "Receipt-to-Pass" system using the Google Wallet API and PyJWT for RS256 signing, enabling the instant generation of verifiable digital passes from raw financial metadata.
- Deployed a **LangChain** SQL Agent on **Streamlit** Cloud capable of zero-shot reasoning over extracted data to answer inventory queries, visualized via real-time Plotly interactive dashboards.
- Tech Stack: **Gemini-1.5-flash**, **Python**, **Google Wallet API**, **SQL**, **LangChain**.

E-commerce Platform | MERN Stack | **May 2025 – Present**

- Developed a responsive e-commerce web application using the **MERN stack**, enabling seamless **user authentication**, real-time **product management**, and **secure transactions**.
- Crafted a **mobile-first** e-commerce website using **Tailwind CSS**, ensuring a responsive user interface across devices and cutting page load times by **2 seconds**, improving user engagement by **30%.**
- Technologies Used: **MongoDB**, **Express.js**, **React**, **Node.js**, **JWT**, **Redux**, **Tailwind CSS**, **Razorpay**.

SentimentSphere | Multimodal Emotion Recognition | **Jun 2025 – Jul 2025**

- Designed and deployed a real-time facial emotion detector (**CNN**, 68% validation accuracy), delivering 50ms response latency for live video analysis.
- Developed and trained a **BiLSTM** text classifier (65% validation accuracy), integrating GloVe-200D embeddings for robust multimodal emotion predictions.

- Unified visual and text analytics on a streamlined Python web platform, improving end-user detection accuracy by 20% over single-modality systems.
- Tech Stack: **Python**, **TensorFlow**, **OpenCV**, **NLP**, **GloVe**, **BiLSTM**.

Network Intrusion Detection System | Machine Learning-Based NIDS | **Feb 2025 – Apr 2025**

- Built a machine learning-based NIDS to identify malicious network activities such as DoS attacks and unauthorized access with **90%+ detection accuracy**.
- Designed features and preprocessed KDD Cup 99 and NSL-KDD datasets; applied ML models (k-NN, SVM, ANN, RF, XGBoost), improving intrusion detection with AUC scores above 0.90.
- Technologies Used: **Python**, **TensorFlow**, **scikit-learn**, **XGBoost**, **NumPy**, **Pandas**.

Key Courses Taken

Data Structures Algorithms, Pattern Recognition and Machine Learning, Probability, Statistics Stochastic Processes, Signals and Systems, Circuit Theory, Computer Organization Architecture.

Technical Skills

Programming Languages: C/C++, Python, JavaScript, SQL
Libraries/Frameworks: NumPy, Pandas, Matplotlib, OpenCV, Scikit-Learn, Gazebo
Tools OS: Git, Jupyter Notebook, Google Colab, Linux, Windows
Software: Gazebo, SolidWorks, Fusion 360, Vivado

Positions of Responsibility

Coordinator, Robotics Society, IIT Jodhpur *Aug 2025 – Present*
Design Coordinator, Career Development Cell, IIT Jodhpur *Jul 2025 – Present*
Associate, Product Club, IIT Jodhpur *Aug 2024 – Apr 2025*
Joint Secretary, Fine Arts Society, Board of Art and Culture, IIT Jodhpur *Aug 2024 – Apr 2025*

Achievements

Achieved a **Top 5** position at Inter IIT Tech Meet 13.0, Autonomous Swarm Navigation *2024*
Clinched **1st Place** at Pitch Rush: Product Management Hackathon, The Product Club, IIT Jodhpur *2024*
Qualified for the **finals** of the RowBoatics RC Boat Racing competition at Techfest, IIT Bombay *2023*
Secured **AIR-393** and **AIR-121** in the JEE Mains B.Arch and B.Planning examinations *2019*