ARJUN PULIVARTHI

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PROFILE

Highly motivated and solutions-driven Computer Science undergraduate specializing in Artificial Intelligence and Machine Learning. Proven expertise in building real-world applications across financial forecasting, cybersecurity, recommendation systems, and IoT-based payment solutions. Co-founder of a student-focused edtech startup, with demonstrated leadership in ideating, developing, and pitching scalable digital products. Adept in Python, Flask, SQL, and ML libraries, with experience in Explainable AI (XAI), time series modeling, and NLP. Passionate about solving impactful problems through innovation, with a strong portfolio of hackathon-winning projects and client- facing prototypes.

ACADEMIC QUALIFICATION

Bachelor of Technology in Computer Science (Artificial Intelligence and Machine Learning) ---------- Aug 2022 - Present
Dayananda Sagar University, Bengaluru, Karnataka.
Aggregate CGPA: 6.0 (Awaiting 6^{th} Semester Results)

CBSE 12th ---------- May 2022
Sri Chaitanya Techno School, Bengaluru, Karnataka.
Percentage: 81%

CBSE 10th ---------- Mar 2020
Presidency School Bangalore South, Bengaluru, Karnataka.
Percentage: 76%

WORK EXPERIENCE

Research Intern ---------- May 2025 – July 2025
National Institute of Technology Puducherry (NIT-PY), Karaikal, India
Assisted in the development of AI/ML-based systems as part of an academic research initiative. Contributing to literature review, data preprocessing, and implementation of machine learning models for heavy vehicles and collaborated with research mentors and graduate students on publication-focused outcomes.

Engineering Lead ---------- Jan 2025 – Present
UniGrid Startup, Bengaluru, India
Lead architect of backend systems, ensuring platform scalability, security, and fault-tolerant design using Flask, MongoDB, and SQLite. Led development of integrated Parent, Teacher, and Student apps, with modules for performance monitoring, leave approval, and real-time alerts. Recruited and managed technical team members; established sprint cycles, infrastructure plans, and product roadmaps. Oversaw end-to-end deployment for MVP pilot at PUC-level institutions, focusing on usability, institutional feedback loops, and analytics dashboards.

Web Developer Intern ---------- Jan 2023 - Jun 2023
Mast Mobile Media Pvt. Ltd., Bengaluru, India
Designed and implemented web pages and interactive features using HTML, CSS, JavaScript, Python, and JSON. Enhanced website SEO and user engagement by optimizing content layout and performance and transitioned legacy web assets to modern, responsive designs to improve accessibility and mobile usability.

STARTUP

UniGrid – RFID-Enabled Smart Student ID and Payment System ---------- Jan 2025 – Present
Developed a full-stack campus payment and identity platform allowing students to pay for food, stationery, and services using a single RFID/NFC-enabled UniGrid. Built admin, cashier, and customer panels with role-based access control, live balance updates, and transaction history. Integrated Razorpay for online top-up and Twilio for real-time SMS alerts on deductions and deposits. Enabled card blocking/unblocking, automated thermal printing of receipts, and ERP-ready sync module for institutions. Designed for scalability within Indian educational campuses, with pilot implementation and ongoing client acquisition efforts.

KEY PROJECTS

Stock Market Price Predictor Using AI ---------- April 2025
Course Minor Project | Team Size: 1
Tech Stack: Python, Pandas, Scikit-learn, XGBoost, LSTM, Matplotlib, Streamlit
Built a financial forecasting tool using historical stock data and AI techniques. Implemented feature engineering with indicators such as moving averages, RSI, and volume trends. Trained and evaluated models using XGBoost and LSTM for short-term price prediction. Developed a real-time, interactive interface using Streamlit for visualization and user input.

AI-Based Defect Detection in Ultrasonic Polymer Welding ---------- Dec 2024

Course Minor Project | Team Size: 4

Tech Stack: Python, OpenCV, NumPy, Scikit-learn, Matplotlib

Developed an image processing system for Non-Destructive Evaluation (NDE) of polymer welds using SEM-based visual data. Specialized in segmentation, tooling setup, and visual data presentation for weld defect identification. Applied advanced filtering (Gaussian, Median), edge detection, and adaptive thresholding for noise reduction and feature extraction. Used GLCM, LBP, and entropy-based texture analysis to achieve up to 93% accuracy in weld defect classification. Accepted at the 2nd International Conference & Exhibition on NDE 4.0 and submitted to the *Journal of Nondestructive Evaluation (Springer).*

Deepfake Detection Software Using Deep Learning ---------- Nov 2024

Personal Project | Team Size: 1

Tech Stack: Python, TensorFlow, Keras, OpenCV, Flask, PIL, Matplotlib

Developed a deep learning-based forensic tool to detect deepfaked or manipulated images using convolutional neural networks (CNNs). Preprocessed input datasets with facial detection and augmentation to improve training robustness. Built a binary classifier to identify forged images and integrated visual explanation tools such as heatmaps to highlight manipulated regions. Deployed the detection system using Flask for interactive testing and demonstration. Evaluated model performance on benchmark datasets, achieving high precision in differentiating real vs. synthetic facial content.

Network Threat Identifier Using AI ---------- Nov 2024

Hackathon Project | PES University - AI/ML in Cybersecurity 2025 - 5th Place | Team Size: 4

Tech Stack: Python, Flask, Scapy, MongoDB, TensorFlow, CNN, Apache Kafka

Designed a real-time network threat detection system using AI to identify anomalous or malicious packets. Implemented a three-node architecture to continuously monitor CPU load and isolate compromised systems. Enabled automatic restoration of affected node state from backups with post-recovery synchronization. Used convolutional neural networks to classify packet behavior and detect intrusion patterns in real time. Integrated live dashboards and alerting mechanisms for proactive security monitoring and visualization. Demonstrated fault-tolerant network recovery through simulated attacks and anomaly injection during evaluation.

Gesture Articulation and Recognition ---------- Jun 2024

Personal Project | Team Size: 1

Tech Stack: Python, OpenCV, MediaPipe, NumPy, TensorFlow

Developed a real-time gesture recognition system using computer vision and deep learning to classify hand gestures from live video feeds. Used MediaPipe for high-accuracy hand landmark extraction and integrated it with TensorFlow for gesture classification. Built a neural network to recognize both static poses (e.g., thumbs up, stop) and dynamic gestures (e.g., waving, swiping). Enabled immediate visual feedback and gesture tracking overlays to enhance interactivity and debugging. Designed for applications in sign language interpretation, virtual control systems, and human-computer interaction environments.

Urban Forge Solutions - AI Toolkit for Urban Planning ---------- Feb 2024

Hackathon Project | RV Hack4Soc 2.0 | Recognized for Innovation | Team Size: 4

Tech Stack: Python, Flask, OpenCV, Scikit-learn, Google Maps API, JavaScript, HTML/CSS, Dialogflow

Built an AI-powered toolkit for city planning with modules for automated floor plan generation, plot price prediction, and a negotiation chatbot. Designed a location-based pricing model using proximity metrics and environmental data via Google Maps API. Integrated Dialogflow to create an interactive chatbot capable of assisting users with urban layout queries and bargaining strategies. Awarded recognition at Hack4Soc 2.0, RV Hackathon for innovation in AI-driven urban infrastructure planning.

IoT-Based AI Farming System ---------- Dec 2023

Hackathon Project | Reva Smart Agro Hackathon 2023 - 3rd Place | Team Size: 4

Tech Stack: Python, Arduino, NodeMCU, TensorFlow, Firebase, Dialogflow, OpenWeatherMap API, IoT Sensors, Google Speech API

Developed a smart farming system that recommends optimal crops based on land size, budget, and environmental data. Automated drip irrigation using real-time soil moisture sensing with NodeMCU-controlled actuators. Built a multilingual, voice-enabled chatbot using Dialogflow and Google Speech API for farmer assistance in crop and irrigation decisions. Integrated real-time weather data for predictive irrigation scheduling and yield optimization.

Virtual Meeting Analysis Platform (Insight Flow) ---------- Oct 2023

Hackathon Project | NIT Surathkal | Team Size: 4

Tech Stack: Python, Flask, HatBERT (custom RoBERTa-based NLP model), NLTK, WebSockets, HTML, CSS, JavaScript, REST APIs, Google Cloud, Kaggle

Built an AI-based platform to analyze team dynamics and individual roles in virtual meetings using the Six Thinking Hats model. Developed HatBERT, a RoBERTa-based NLP classifier, to identify conversational tones and psychological roles in real time. Integrated WebSocket-based infrastructure to support live sentiment tracking and role annotation during meetings. Deployed the system with interactive UI for SME teams to enhance collaboration and behavioral awareness.

Sakhi Samriddhi – AI-Based Menstrual Health Prediction and Chatbot System ---------- Nov 2023

Hackathon Project | KLE GirlGeekHack 2023 - 1st Place | Team Size: 4

Tech Stack: Python, TensorFlow, Flask, Dialogflow, HTML/CSS, Bootstrap

Developed a predictive health assistant to forecast menstrual cycles using user-provided health data and machine learning models. Designed an AI-powered chatbot using Dialogflow to guide users with period tracking, health alerts, and personalized responses. Integrated model outputs with web interface for user-friendly access and interaction. Won 1st place for innovation in women's health.

Cafe Management System – GUI-Based Billing and Order Application ---------- Mar 2022

Course Project | Team Size: 2

Tech Stack: Python, Tkinter, MySQL

Developed a desktop application for café order management with real-time item selection and tax-inclusive billing. Designed an intuitive GUI using Tkinter to handle order placement, billing calculations, and receipt generation. Integrated MySQL for managing menu items, orders, and transactional logs. Focused on improving customer experience through a clean interface and fast processing.

Timetable Maker - Automated Class Schedule Generator ---------- Oct 2019

Personal Project | Team Size: 1

Tech Stack: Python

Created a Python-based scheduling tool to automate weekly school timetables with configurable logic. Implemented condition-based constraints to prevent subject repetition and ensure balanced allocation across weekdays. Designed for school-level use with focus on reducing manual effort and human error in timetable planning.

FREELANCE PROJECTS

AI IPL Win Predictor - Real-Time Cricket Match Outcome Forecasting ---------- Jan 2025

Freelance Project | Team Size: 1

Tech Stack: Python, Pandas, Scikit-learn, Streamlit, Matplotlib

Built a real-time IPL match prediction tool using logistic regression on ball-by-ball match data. Engineered features such as run rate, wickets left, overs remaining, and momentum for accurate win probability forecasts. Designed a dynamic interface using Streamlit that updated predictions after every delivery. Integrated data visualization tools to represent shifting match momentum and statistical insights interactively. Deployed as a contract-based solution for use in fantasy league analytics and live match dashboards.

LEADERSHIP & EVENT MANAGEMENT

Chairperson, IEEE Student Branch ---------- Jan 2024 – Jan 2025

Dayananda Sagar University, Bengaluru, India

Built the IEEE Student Community in my University. Led international tech conferences, speaker sessions, and innovation forums under the IEEE banner. Oversaw strategic planning, member engagement, and collaboration with global IEEE chapters. Spearheaded initiatives to enhance student participation in AI/ML-focused competitions and research workshops.

Chairperson, IEEE CIS Student Chapter ---------- Dec 2023 – Apr 2024

Dayananda Sagar University, Bengaluru, India

Organized AI/ML technical workshops, coding competitions, and expert lectures across the university. Managed content curation, logistics, and cross-departmental coordination for high-impact events. Fostered collaboration among student chapters through joint events and knowledge-sharing initiatives.

Organizational Lead ---------- Mar 2024

ICIQ-24 Hackathon – DSU x LeTourneau University (USA)

Served as core organizing member for a 30-hour international hackathon involving 60+ student teams and 200+ stakeholders. Handled end-to-end logistics including registration, team allocation, tech infrastructure, and live support coordination. Collaborated with global delegates from Google, ISRO, and US universities to ensure smooth cross-time-zone participation. Contributed to content creation, marketing workflows, and real-time crisis resolution during the event.

Disciplinary Committee Head ---------- Oct 2024 – Present

Centre for Performing Arts (CPA), Dayananda Sagar University

Led discipline, safety, and backstage coordination for high-footfall college fests and cultural events. Enforced protocol across event zones, collaborated with volunteers and university staff, and ensured smooth event operations.

Volunteer & Coordinator ---------- Dec 2023

IEEE TEMSCON Asia-Pacific 2023, Bengaluru, India

Managed attendee registration and logistics for an international IEEE conference held at Sheraton Grande, Bengaluru. Facilitated smooth execution of sessions, handled speaker coordination, and supported backend operations. Collaborated with senior IEEE professionals to coordinate tracks across technology, engineering, and innovation domains. Assisted in managing panel discussions, Q&A sessions, and emergency protocol during high-attendance keynotes.

PUBLICATIONS

Unlocking Insights in Ultrasonic Polymer Welding: Advanced Image Processing and Data Integrity for SEM-Based Quality Analysis in NDE 4.0

Accepted at the 2nd International Conference & Exhibition on NDE 4.0 (Paper ID: CP-9, AB-010), 2024.

AWARDS & ACHIEVEMENTS

1. **5th Place**, PES University AI/ML in Cybersecurity Hackathon 2025
2. **Best Innovation Mention**, RV Hackathon Hack4Soc 2.0, Feb 2024
3. **Lead Organizer**, ICIQ-24 Hackathon, Mar 2024
4. **3rd Place**, Reva Smart Agro Hackathon 2023, Dec 2023
5. **1st Place**, KLE College GirlGeekHack 2023, Nov 2023
6. **Appointed Chairperson**, IEEE Student Branch & IEEE CIS Chapter, 2023–2025

SKILLS

Programming Languages ----------

Python (expert), Java (academic), C (expert), HTML, CSS, JavaScript, SQL

Frameworks & Libraries ----------

Flask, Streamlit, Tkinter, Bootstrap, OpenCV, MediaPipe, TensorFlow, Keras, Scikit-learn, Numpy, Pandas, Matplotlib, Seaborn

Machine Learning & AI ----------

Convolutional Neural Networks (CNN), LSTM, XGBoost, Logistic Regression, HatBERT, Natural Language Processing (NLTK, Dialogflow), Recommendation Systems, Time Series Forecasting, Explainable AI (SHAP & LIME), Feature Engineering, Image Segmentation, Thresholding, Texture Analysis (GLCM, LBP), Entropy-based Detection

Tools & Platforms ----------

Git, GitHub, Jupyter Notebook, PyCharm, VS Code, Arduino IDE, Firebase, Google Cloud Platform, MongoDB, REST APIs, WebSockets, Apache Kafka, Scapy, MySQL, SQLite

DevOps & Deployment ----------

Heroku, GitHub Pages, Netlify, cPanel, Streamlit Cloud

Data Visualization & Analysis ----------

Matplotlib, Seaborn, Excel, Streamlit Dashboards, Heatmaps, Confusion Matrices

Hardware & Embedded Systems ----------

Arduino, NodeMCU, RFID/NFC, Thermal Printer Integration, IoT Sensors

Soft Skills & Leadership ----------

Team Management, Hackathon Organization, Cross-Functional Collaboration, Technical Communication, Strategic Planning, Public Speaking, Mentoring Peers, Client Interaction

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CERTIFICATIONS & COURSES

FOSSMeet '24 ---------- Feb 2024

NIT Calicut, Kerala, India

Participated in sessions on Free and Open Source Software, developer best practices, community-driven tech, and open AI tooling.

Signals and Systems ---------- Dec 2023

Udemy Certificate ID: UC-63ef1c59-0a56-40a2-b7c3-e6e693609822

Studied signal processing fundamentals, Fourier series, Laplace transforms, and system analysis for AI/ML signal inputs.

Data Structures and Algorithms ---------- Nov 2022

Udemy Certificate ID: UC-9b39c8c8-8bd4-4df2-a4dc-8bd3c94bc033

Learned sorting/searching algorithms, recursion, trees, graphs, and problem-solving patterns for coding interviews.

Complete Python Bootcamp ---------- Sep 2022

Udemy Certificate ID: UC-80c5ada9-bc51-4184-aeaa-04c9520f0a93

Covered Python fundamentals, data structures, OOP, file handling, web scraping, and introductory data visualization.
