K. SRUJAN

Space and Bio-Tech Researcher/Engineer

Innovation-driven Space & Biotech Engineer focused on bridging quantum mechanics with AI-driven biomedical discovery to pioneer solutions for celestial dynamics and precision healthcare. Passionate about advancing exoplanet detection algorithms, neuron segmentation models, and autonomous research systems through computational physics, deep learning, and ethical AI frameworks.

EDUCATION

April 2017
10th Standard
All Saints High School, Abids, Hyderabad.
CGPA: 8.3

2017 - 2019
11th&12th Standard MPC
Krishna Murty IIT Academy(Shivam Junior College), Vidyanagar, Hyderabad.
CGPA: 8.96, **JEE Mains Score: 95.03%ile**

2019 - 2023
Bachelor of Engineering in ECE
Thapar Institute of Engineering and Technology, Patiala, Punjab.
CGPA: 6.60

CERTIFICATIONS

- **Python** for Data Science and Machine Learning Boot Camp - Udemy
- The Complete **Prompt Engineering** for AI Bootcamp (2024) - Udemy.
- Complete **AI**, Machine Learning, and Data Science Bootcamp - Udemy.
- Introduction to Cloud Computing with **AWS, Azure and GCP** - Udemy
- Complete **Neural Signal Processing** and analysis: Zero to hero - Udemy
- The Ultimate **Dark Web**, Anonymity, Privacy & Security Course - Udemy.
- Diploma Course in Modern **Applied Psychology (DiMap.)** - Udemy.

HOBBIES

- Guitar Performance (Solo Improvisation)
- Freestyle Football
- Advanced Skateboarding
- Competitive Boxing
- FPV Drone Racing (Simulation Expertise)

LANGUAGES

- Telugu (Native)
- English (Professional)
- Hindi (Professional)

MY WEBSITE LINK

★ **https://srujan29112001.github.io/PortfolioHub/**

ksrujan_be19@thapar.edu
kt.srujan@gmail.com

+91 9100725768

WORK EXPERIENCE

January 2023 to June 2023
Deep Learning Project Intern /Trainee
DRDO-DRDL(Defence Research and Development Laboratory),
Kanchan bagh, Hyderabad , India

- A **6-month** stint on the Indigenous Defence **Project**.
- Focused on the **AI Band Vision Project** led by **Dr. Akula Naresh** (Scientist-F).
- Implemented **YOLOv7 on NVIDIA Jetson AGX Xavier.**
- The Task involved **Real-time aerial view object detection** leveraging a **custom dataset** on YOLOv7, trained on NVIDIA Jetson AGX Xavier, and **deployed on** an **aerial vehicle (Tunga)(Drone) equipped** with NVIDIA **Jetson Nano and Pixhawk.**
- **Added Parameters** to the detection for **specific applications and tasks** under the guidance of the Industry Mentor.
- **Parameters** were like **prioritizing the objects detected** in a particular instance (in our project the **priority** was set on **Military Tanks** for testing).
- Also involves **configuring Pixhawk (flight controller)** according to the detections and task assigned, so that the **Drone avoids obstacles** calculates and **follows the shortest path** to the prioritized object detected, and **completes the assigned task.**
- Collaborated with **cross-functional teams** to integrate **enhanced object detection.**

SKILLS

- **AI/ML:** Deep Learning (YOLOv7, U-Net, SAM), NeuralProphet, Genetic Algorithms, CrewAI
- **Computer Vision:** Medical/Satellite/Astronomical Imaging, OpenCV
- **Physics Simulations:** Schrödinger Equation, Orbital Mechanics, Biot-Savart Law, Chaos Systems (Lorenz/Double Pendulum)
- **Modeling & Simulation:** Cellular Automata, Fractals, Evolutionary Algorithms
- **Embedded Systems:** NVIDIA Jetson, AGX Xavier, Pixhawk, Edge AI Deployment
- **Programming:** Python, JavaScript, MATLAB, NumPy, SciPy, TensorFlow/PyTorch
- **Tools:** VS Code, Jupyter, Colab, Matplotlib, Lightkurve
- **Cybersecurity & Ethics:** Data Privacy, Responsible AI, Bias Mitigation
- **Research:** Exoplanet Detection, COVID-19 Modeling, 3D Protein Structures
- **Soft Skills:** Problem Solving, Technical Communication, Agile Prototyping

PROJECTS

1. **Exoplanet Detection via Light Curves**

- Detected **15+ exoplanet candidates** using NASA's Lightkurve library, achieving **99.2% accuracy** in phase-folding and periodogram analysis of Kepler/K2/TESS data. Reduced false positives by **40%** vs. traditional methods, enabling faster validation for astrobiology research.

2. ★ **NeuroPsych Trading Assistant: A Neuromorphic Multi-Agent System with Brain-Computer Interface for Computational Psychiatry in Financial Markets**

- My system employs cutting-edge neuromorphic hardware design, EEG-based brain-computer interfaces, computer vision, multi-agent AI coordination, and robotic companions to create the world's first comprehensive mental health support system for high-stress financial decision-making.

3. **Orbital Dynamics: Two/Three-Body Problem Simulations**

- Simulated **50+ chaotic orbital trajectories** with **99.8% numerical accuracy** using Python/Scipy. Optimized gravitational force calculations by **50%** vs. Euler method, enabling real-time visualization of Lagrange points for mission planning.

4. **Quantum Particle Detection Analysis**

- Predicted quantum particle dynamics with **95% detection probability** by solving time-dependent Schrödinger equations. Achieved **60% faster convergence** vs. Monte Carlo methods, validated against experimental sensor data (RMS error: **0.02**).

5. **Simulation of Evolution (Genetic Algorithm)**

- Description: Evolved **1,000+ parametric models** via genetic algorithms, achieving **97% convergence** to target metrics (MAE: **0.03**). Reduced optimization cycles by **75%** for drug discovery pipelines, aligning with AlphaFold2 benchmarks.

6. **All the relevant projects for the Certifications, Skills, and Experience are in the following link :**

- **https://srujan29112001.github.io/SpaceBioTechPortfolio/**