

SAISAMARTH TALURI

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EDUCATION

BTech Computer Science and Engineering, PES University
CGPA: 9.09 (Until 6th Semester)

Expected May 2024

INTERNSHIPS

Research Intern, Indian Institute of Science, Bangalore

Sept 2023 — Present

- Developed scripts for training, fine-tuning, and inferencing various deep learning models (**ResNet, MobileNet, YOLOv8, BERT, Whisper**) on Nvidia Jetson AGX Orin, focusing on performance metrics such as time and power efficiency across diverse configurations.
- Excelled in developing predictive models using **regression, random forests, neural networks, and transfer learning**, enhancing prediction and optimization of power mode configurations leading to a prediction-based optimization study submitted to SIGMETRICS 2024.

Artificial Intelligence Intern, Third Ray, Inc

Jun 2023 - Aug 2023

- Developed e-commerce data dashboards with complex visualizations (**Sankey charts, Sunbursts, Bubble charts, Choropleths**) using a Node-RED based platform. Implemented and compared various time series forecasting models (**LSTM, SARIMAX, Prophet**) for enhanced predictive accuracy.
- Spearheaded the deployment of **LLMs (Dolly 2, MPT, Falcon, LLaMA 2)** on CPU/GPU hosted on cloud platforms (**Azure, Google Cloud**), employing quantization through **GGML and GPTQ** for model optimization. Fine-tuned Llama 2 using **LoRA** and GPT-4 API generated data for customized applications. Developed and deployed chatbots powered by **Azure Open AI** with online and database search capabilities.

Data Analyst Intern, PESU I/O

Aug 2022 — Dec 2022

- Conducted in-depth analysis of student registration data, using **advanced visualization** and ML algorithms (**LSTM, SARIMAX**) for forecasting and insights. Performed clustering and filtering for course popularity assessment.
- Developed a real-time, dynamic **course recommendation system**, improving registration efficiency and student engagement where the system adapted content based on user interactions, utilizing data-driven insights for course suggestions.

PUBLICATIONS

- Adithya Balasbramanyam, **Saisamarth Taluri**, Sanjana Swaminathan, Sai Shruthi Shashidhar, Sankalp Kumar and Prasad B. Honnavalli, “*Enhancing Medical Education with MediLearnVR: A Virtual Patient Simulation powered by Artificial Intelligence*”, Virtual Reality 2024 - Under review
- Saisamarth Taluri**, Cherindranath Reddy, Prakriti Baral and Soumya Konar, “*Advancing Sentence Simplification with Transformer Neural Networks*”, International Conference on Emerging Trends in Digital Technologies (ICETDT) 2024 - Under review
- Prashanthi S K, **Saisamarth Taluri**, Sujan Mallikarjun and Yogesh Simmhan, “*PowerTrain: Optimizing Training Time and Power Usage for Deep Learning on Accelerated Edge Devices*”, SIGMETRICS 2024 - Under review
- Shruti Jadon, **Saisamarth Taluri**, Sakshi Birthi, Sanjana Mahesh, Sankalp Kumar, Sai Shruthi Shashidhar and Prasad B. Honnavalli, “*An Assistive Model for the Visually Impaired Integrating the Domains of IoT, Blockchain and Deep Learning*”, MDPI Symmetry 2023, <https://doi.org/10.3390/sym15091627>

FREELANCE EXPERIENCE

Technical Consultant, Novelty Data Solutions LLP

Aug 2020 — Present

- Spearheaded the design and development of web applications for healthcare institutions, including the National Institute of Mental Health and Neurosciences utilizing **HTML, CSS, JavaScript, Python, MySQL, and WordPress**.
- Developed Business Intelligence solutions using **Python (Pandas, NumPy)** and visualization tools (**Seaborn, Matplotlib**). Created dashboards in **Microsoft Power BI** for Columbia Asia Hospitals and conducted EMR Data Analytics.

Software Consultant, VeeVee Controls Pvt Ltd

Apr 2021 — Mar 2022

- Engineered middleware integrating **ESSL Biometric Attendance** devices with **Relyon Payroll** software, significantly reducing payroll processing time and involved in data automation and synchronization via **SFTP**.
- Developed project management dashboards using **Google Sheets**, integrated with ERP for HRMS and employee engagement. Developed reports for operational efficiency and departmental insights.

Executive Manager, PESU I/O

Jan 2023 — Apr 2023

- Successfully led the **end-to-end process** of slot planning, from initial design to final certification distribution, ensuring optimal resource allocation and seamless execution.

- Managed a team responsible for facilitating **efficient communication** between course trainers and students, enhancing the overall learning experience. Led **scheduling and optimization** efforts for classes, rooms, and necessary equipment to streamline operations.

TECHNICAL SKILLS

Programming Languages: Python, MySQL, C, HTML/CSS, JavaScript, Java, R

Key Subjects: Data Analytics, Machine Intelligence, Deep Learning, Computer Vision, Database Management Systems, Computer Networks, Big Data, Data Structures and Applications, Operating Systems, Software Engineering

Certifications: Mathematics for Machine Learning and Data Science Specialization (DeepLearning.ai), Machine Learning Specialization (DeepLearning.ai), Data Analytics using Deep Learning (National University of Singapore), HPE CTY 2023, Computer Vision with Deep Learning (PESU I/O), 30 Days of Google Cloud (Google Qwiklabs)

SELECTED PROJECTS

AI powered Virtual Patient

Developed and tested a VR-based Virtual Patient powered by Conversational and Generative AI technologies like Inworld AI and ChatGPT API. Includes realistic patient conversation and dynamically generated medical reports and scans.

Chat with your PDFs

Developed an interactive **Streamlit** app for dynamic querying of PDF files. Integrated **OpenAI** and **Hugging Face Embeddings** for semantic search and used **Langchain's Memory Buffer** for enhanced conversation memory retention.

Automated TimeSeries Predictor

Created a Streamlit-powered web app offering comprehensive EDA tools, live stock data fetching, and time series predictions with **YData's Profiling** insights and visualized forecasting results.

Indian Number Plate Detection

Created and annotated a custom dataset of over 300 images using **V7** for detecting Indian vehicle number plates. Employed **YOLOv8** for the detecting and OCR for logging number plates from a video stream.

Twitter Sentiment Classification

Implemented sentiment classification on Twitter comments as Hate/Non-Hate using **GloVe word vectors** and a basic LSTM model utilizing the Twitter Sentiment Analysis dataset from Kaggle.

Audio Emotion Recognition

Conducted an audio processing project utilizing **Librosa** to analyze **MFCCs and Mel Spectrograms** for classifying music into one of Russell's Emotion Quadrants.

Evaluation of Descriptive Answers

Prototyped a NLP model that employs **Cosine Similarity, FuzzyWuzzy, Levenshtein, and Hamming Distance** algorithms for evaluating and grading descriptive answers.

AWARDS AND NOMINATIONS

Forth Runner Up, IEEE CS Hack The Metaverse, IIIT Bangalore

Recognized for developing a Virtual Patient Simulation leveraging **Unity** for an immersive virtual clinic experience. Integrated **Inworld AI** for realistic patient interactions and used generative AI technologies, such as **ChatGPT API** for dynamically generating patient blood reports and vitals and **GANs** for the creation of authentic X-ray scans.

Finalist, Robofest Hackathon, IEEE Robotics and Automation Society of PES University

Designed and built a voice-controlled prototype car using **Arduino Uno**, equipped with an **HC-05 Bluetooth** module. Developed an Android app enabling Bluetooth connectivity for remote maneuvering and voice command recognition.

Dr MRD Merit Scholarship, PES University

Awarded a scholarship of amount **INR 56,000** in multiple semesters for consistent academic excellence, a distinction given exclusively to the **top 15%** of the batch.

Grade 9 Second Prize, NASA Ames Space Settlement Contest 2017

Authored a detailed article presenting a visionary proposal for a space settlement, Solaris. The project encompassed comprehensive planning for location, structure, life support systems, energy production, waste management, and artificial gravity.

VOLUNTEERING

Crowd Management Organiser, Chords 2021, PES University Ensemble Fest

Played a key role in organizing and managing large crowds, ensuring smooth event flow and attendee safety.

Blood Donation, Bangalore Medical Services Trust, Rotary Bangalore Blood Centre

Actively participated in blood donation drives, contributing to community health and emergency medical needs.