Shrutika

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EDUCATION

- **University of Southern California** — Los Angeles, USA
  Master's Computer Science (Intelligent Robotics) — *Fall'23*

- **MIT World Peace University** — Pune, India
  Bachelor of Technology in Computer Science and Engineering — *GPA: 9.32/10.00; Apr'17 - May'21*

- **GRE:** 330/340

RESEARCH PAPERS, PATENTS and PROJECTS

- **PATENT for Education Facilitating System For Visually Impaired Persons**: Developed An IoT device to educate "visually-impaired people" with two of my PHD Professors. Consists of 60 movable tactile elements representing 6-dot braille configuration holes, movement provided by 30 servo motors arranged in DeBruijn sequence.

- **Asia-Pacific Broadcasting Union (ABU) INTERNATIONAL ROBOCON COMPETITION**: Created simulation environment for robots to throw shuttlecocks using ROS and Gazebo. Integrated holonomic chassis with Omni wheels using 3 and 4-point Bezier curves in Matlab. Utilized OpenCV algorithms for gyroscopes and Lidar sensors for path planning. Runner-up among 112 colleges participating worldwide.

- **RESEARCH PAPER for Voice Assistant For Ubuntu Implementation Using Deep Neural Network**: Designed a Ubuntu-Voice Assistant that performs actions based on the voice commands. Utilizes a 6-layered DNN to convert .wav files to text, and implemented a Sequential Bidirectional Neural Network for audio signal processing.

- **B.TECH THESIS at Collaborative Research Development Forum (CRDF), Pune**: Developed algorithms to detect corners in Vector images by intersecting straight lines and Bezier Curve elements transformed traditional image preprocessing by removing the computationally heavy task of creating image pyramids and saved disk space by 46% .

SKILLS

- **Robotics:** Mathematics • ROS • Gazebo • Rviz • MoveIt • URDF • Matlab • Eigen • Sensors/Drones • 3D Printers • Lidar • Lasers, and Cameras • IMU • Motor Drivers and Controllers • Holonomic Chasis • Omni Drives • Solid Works • Linux • RPI/Arduino/Mcu

- **Control Systems:** PID • MATLAB • Matplotlib • Simulink • LPC • MPC • Pyplot

- **Programming:** C • C++ • Python • Javascript • Nodejs • Nestjs • Websockets • SQL • MongoDb • Reactjs/redux • HTML/CSS/Bootstarp • AWS • Git • Google Collab • JIRA

- **ML and Computer Vision:** OpenCv • Numpy • Pandas • RasaNLU • CNN • RNN • Control System • Reinforcement Learning • Open Ai Gym

- **Course: Aerial Robotics by University Of Pennsylvania (Coursera), Secured 98.33%.**

EXPERIENCE

- **SPENDFLO** — Chennai, India
  Software Engineer — *Oct'22 – present*

  - **Streamlined Contract and Invoice Processing Workflow by building Internal OCR Model**: Built an internal Spendflo machine learning model to process financial invoices and contracts. Extensively trained 800+ contract PDFs using Document AI and Vector Indexing, achieving 93% accuracy. Integrated open-AI APIs and text embeddings to extract relevant information from processed contracts and invoices data, digitally mapping MongoDB fields. Scaling down human effort in the invoice and contract processing workflow.

  - **Winner of Spendflo Internal AI hackathon**: Developed pre-programmed system to map products with transactions directly by converting transaction descriptions into vector indexes through graph composite indexing with Llama index with 0.98 confidence score, minimizing the time spent for manual mapping over 8500 transactions+ per customer, from 15+ days to less than 5 minutes.

  - **Nest.js APIs for Gmail Integration**: Created Node.js APIs to read invoice files directly from Gmail. Implemented secure authentication and authorization mechanisms to access Gmail accounts. Improved efficiency by automating the retrieval of invoices, reducing manual effort

- **WEBONISE LAB** Pune, India
  Software Engineer *Dec'20 - Feb'22*

  - **Reco.ai {Context Powered Saas Security App}** : Worked on the reco.ai project. it's an Israel Based Company, I used dynamic graph library called ReGraph for showing file transfer and communication between different people within an organisation and for reporting incidents in graph form, that reduced data exposure risk across SaaS by 73%.

    As the application has more than 30 repositories and 10000+ components, I developed several reusable regraph library components to be used across these different applications.
  - **DRF.com {Horse Betting Platform}**: Worked on frontend using react, redux and backend using node and nestjs, etc, used various complex NPM tools like react-notes, table, hooks, hoc, formik, sockets, Rxjs, pipelines, etc.

    I was the main code maintainer and reviewer of one of the "drf-singularity" repository. My roles involved setting up CI/CD, Github Workflows, and Test Driven Development. Wrote efficient test cases using jest, enzyme, snapshot tesing that increased the code-coverage by 58%.

- **FLYTBASE LABS PVT. LTD** Pune, India
  Full Stack Robotics Engineer *Aug'20 – Dec'20*

  - **Integrating ROS with Hardwares**: Worked on app.flynow.com that allows easy deployment of intelligent drone fleets. Integrated ROSlib package with DroneSDKs to enable seamless integration of drone hardwares, sensors and actuators and the application.
  - **Implemented Precision Landing**: Implemented various unified RxJs and ROS Libraries with google-maps API to facilitate drone's navigation by using polylines. To enhance precision landing, I also developed an advanced algorithm for precision landing, hovering, etc. Wrote unified NodeJS and Websockets APIs, REDIS programs to give the real time latitude and longitude of drones location.
  - **Enhancement and Testing Automation**: Delivered reliable, well-tested software for autonomous drones by improving and automating our internal tools, our development environment, programming practices, and building ROS libraries.

INTERNSHIP

- **SOCIAL PILOT** Software Intern | India | Feb'20 – Aug'20
  Social Pilot is a social media marketing management platform. I worked on frontend using reactjs and also generated Condensed Reports using algorithms like LexRank summarizer and Latent Semantic Analysis.

- **Codex.Rocks** Software Intern | India | Mar'18 – Feb'20
  Worked on both Frontend and backend application using react, nodejs, etc for designing critical features to teach kids to learn various coding language like HTML, CSS and Javscript via interactive games.

  Scoping project requirements using Agile and Scrum principles related to the mission-critical application that helped prioritize developing activities and reduce adhoc work requests by 39%.

- **INDIAN INSTITUTE OF SCIENCE (IISc)** Summer School — India
  Designed an android app integrated with a Doctor Bot Using CNN for predicting the spread map of pandemic across vaious parts of india

  Won 1st Prize for this Project at Summer School among 90+ participating students.

EXTRA CURRICULAR

- **MCUG Club**: Taught Linux Fundamentals to Children with disabilities
- **Hour Of Code— CodeChef**: Volunteered to teach programming basics to kids organised by CodeChef and Hour Of Code
- **Open Source Contributor Accord Project, GSOC**: I have been contributing to open source at accord project since GSOC 2021.