MOHAN MADHUKAR KSHIRSAGAR

[PYTHON AND ROBOTICS DEVELOPER]

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Career Objective:

Looking for a challenging and responsible opportunity to explore my strengths and potential in a Professional organization.

About Me:

I have 6 years and 6 months of Industrial experience in the field of product development, Robot Design, Computer Vision and AI. I am looking forward to working in an Organization to utilize the best of my Knowledge and capabilities for the positive growth of organization and personal. Also gaining strong interest in Technical and team oriented development environments, and like to pursue a highly rewarding career in the area of my specialization whereby I could offer my full potential to the company and contribute meaningfully to the long term growth of the company.

Work Experience:

1) Currently working with "**Persistent Systems Ltd Pune**" from June 2022 as "**Senior Engineer Lead**" Current Client Projects:
    1. ***Milliporesigma-*** *Vendor Feasibility Analysis and Architecture Design for "Indoor Asset Navigation system for Ultra Low Temperature".*
    2. ***iRobot Corporation.-*** *Developing test plans to validate expected (simulated and physical Robot) behavior and integration of new add-on features.*

2) From March 2022 to June 2022, I was working with **"Tech Mahindra Ltd Pune"** as **"Senior Software Engineer",** Here my Responsibilities were to contribute in robot hardware selection and designing of customized interfaces.

3) From Nov 2021 to March 2022, I was working with "**Wipro Limited Pune**" as "**Senior Software Engineer**" for Pune Location. Here my responsibilities are to contribute to the design of security devices based on Artificial intelligence and Machine Learning.

4) From DEC 2019 to Nov 2021, was working with "**On My Own Technology Private Limited Pune**" as "**Senior Branch Manager**" for Pune Location. Here my responsibilities were handling the retail robotics division under that leading Research and Innovation Projects in the field of Embedded, Robotics and Artificial Intelligence.

5) From AUG 2017 to NOV 2019, was working with "**IndiaFIRST Robotics Research and Innovation LLP Pune**" as a "**Product Development Head**", here my work responsibilities were to Developing Humanoid Robot, Leading Product Development Department for Development of Embedded and Robotics based Projects also handled military Projects.

Research Publications in International Journals:

1) Published Research paper on **"Autonomous UV Sanitization Robot with Social Distancing, Body Temperature and Mask Detection Using Automatic Path Planning and Multi-Terrain Capabilities"** at IJSRET (International Journal of Scientific Research & Engineering Trends) in Volume 6, Issue 5, Sept-Oct-2020, ISSN (Online): 2395-566X.

2) Published Research paper on **"Creating a Haptic 4D Model Along with Machine Learning Analysis by Developing a Non-Invasive Pressure Mapping Method to Screen Genital**

Skin Cancer" at International Journal of Software & Hardware Research in Engineering (IJSHRE) ISSN-2347-4890 Volume 9 Issue 5 May 2021.

3) Published Research paper on **"Use of a Haptic Glove-Gaming Interface to Stimulate Kinesthetic and Auditory Coordination in Blind Children"** at Journals: International Journal of Software & Hardware Research in Engineering (IJSHRE) ISSN-2347-4890 Volume 9 Issue 5 May 2021.

4) Published Research paper on **"Border Security System for Intrusion Detection Using Robotic System, Thermal Imaging Camera, Computer Vision and Machine Learning"** at IJSRET (International Journal of Scientific Research & Engineering Trends) in Volume 7, Issue 4, July-Aug-2021, ISSN (Online): 2395-566X.

5) Published Research paper on **"Design and Development of Aerial and Under-Water Capability Drone for Security and Surveillance"** at IJISET - International Journal of Innovative Science, Engineering & Technology, Vol. 8 Issue 12, December 2021 ISSN (Online) 2348 – 7968 | Impact Factor (2020) – 6.72.

Skills:

- Knows industrial tools for version control such as Git and JIRA.
- Having Good Understanding on Robot Firmware: ROS *(Robot operating System),* AI *(Artificial Intelligence),* ML *(Machine learning),* Open-CV *(Computer Vision).*
- Having Good Understanding on : Embedded C, Python, OpenCV-Python, Tensorflow, Keras, and related python libraries like (Numpy, Matplotlib, Scipy, Pandas, etc).
- Familiar with development using Linux Operating System(Ubuntu 20.04), SQL, DJANGO and WAMP Server, AWS, Jenkins and AWS Cloud Console
- Having Basic understanding of: C, C++, JAVA, JAVA SCRIPT, HTML, CSS, PHP.
- Used Simulation Software like: Multisim, Processing P3D, Proteus, MATLAB, Eagle PCB Designing and CAD (Autodesk Fusion 360)
- Knows Android Application Designing using MIT APP inventor and Android Studio.
- Knows Industrial Grade Drone Designing using 8-bit/16-bit flight controllers such as KK, APM, PX4.
- Known Embedded Controllers: 8051, Arduino, PIC, ARM, Raspberry Pi, Humanoid Nervo-Board.
- Knows 3D part Designing, Assembly, Animation, Simulation and 3D Printing.

Certifications:

- **Certification 1:** Python Fundamentals
- **Certification 2:** Computer Vision
- **Certification 3:** Machine Learning

Projects:

- **Embedded Project:**
  - Automatic 3 Phase Water Pump Control System.
  - 3D room Scanner using Lidar TF02.
  - Automatic Solar Panel Cleaning Robot.
  - Arduino Based Sign to Speech Convertor.
- **Drone Project:**
  - Nano category Drone Design for Educational Purpose.

- 3KG Automatic Load Carrier / Delivery Drone based on predefined navigation.
- Automatic Patrolling Drone for Military & Police.
- Underwater Drone for underwater and air surveillance.

Robotics Projects:

- Developed a real life 7 feet tall Humanoid Robot with 32 motors using custom Arduino neuro boards and windows gigabyte CPU.
- Customizable 8- DOF Robotic Arm Design Development.
- Biped robot design for education and hobby purpose.
- 2 Wheel Balancing Robot using DC Motors and IMU Sensor.
- Automatic Maze Solving robot.
- Sketching Robot for Commercial with 3 Axis automatic pen color change.

Electronics Projects:

- Arduino ISP Burner Kit.
- Arduino Development Board for educational use Supports Textual and Block Programming.

AI, ML and Computer Vision based Projects:

- Computer Vision based Automatic Road Sign Detection System for Automatic Driving cars using CNN Model and Opencv Python.
- Face Recognition & Face tracking Robot for Attendance record for remote places.
- Automatic Path Planning for floor Cleaning robot and for Self Driving Robots System.
- Automatic Sign Language Recognition using opencv Python and Keras based Sequential Model.
- Face Mask Detection COVID Challenge using opencv python and yolo v3 Deep Learning and Dark-Net Model.
- Social Distancing Detector COVID Challenge using yolo v3 Deep Learning and Dark- Net model
- Forehead temperature detection using thermal imaging camera COVID Challenge.
- Touchless automatic attendance system using python opencv and numpy based machine learning model.
- Anemia detection using opencv python and machine learning.

Academic Projects:

- Vehicle plus. (IOT). [BE Project]
- Wireless Power Transfer Using Mutual Inductance [TE Project]
- VLSI design of Multy gate IC [BE Lab innovation]
- Ultra Disto [TE Lab innovation]
- Etching Machine for PCB design [SE Lab innovation]
- Wireless Robot with Wireless Camera. [Diploma Project]
- Clap Switch for Multi-application control. [Mini Project]
- Light follower robot without using a controller. [TE Lab Innovation]
- Line Following robot without using controller. [SE Lab Innovation]

Achievements:

- 2023 - Received “Special Award” from Persistent System ltd.
- 2023 - Received “Bravo - Individual Award” from Persistent System ltd.
- Registered - 3 Patents of prototype level.
- 22 research papers published in an international journal.

- 2 times Special Award winner in ISEF International Science fair.
- Grand Award winner in IRIS National Fair.
- Runner Up in BIEA International Competition 2020 and 2021.
- Design Award winner in FTC India 2019-20.
- Global Member of INMOOV the Humanoid Community.
- Conducted 400+ technical Workshops at Schools, Collages, Military Camp on Robotics, AI, ML, OpenCV, etc.
- FTC India 2018-19 Control Award Winner for Best Actuator Design.
- Winner at IIT Guwahati Robotics Competition 2017-18.
- FTC India 2017-18 Think Award Winner for Best Robotics Design.
- Head of Research Center SIT Lonavala in ac Year 2016-17.
- Technical head in IETE 2016 -17.
- Organizer of state level project Exhibition + Competition-2016.
- Winner in mind wave control robot design in IIT Bombay-2015.
- Winner in MSBTE project Exhibition -2014.
- Conducted State Level Workshop in Embedded System Designing -2014.

Educational Details:

Course	Institute/College/School	University/ Board	Percentage	Year of Passing
BE [ENTC]	SIT Lonavala	SP Pune University	73.87%	2017
Diploma [ENTC]	MPVPI Nanded	MSBTE Mumbai	81.09%	2014
HSC [Science]	SSGMJC Loha	Maharashtra Board	45.00%	2012
SSC [Marathi]	ZP Loha	Maharashtra Board	56.73%	2010

Personal Details:

- Gender: Male.
- Marital Status: Married.
- Date of Birth: 15/05/1994.
- Language Proficiency: Marathi, Hindi, English.
- Postal Address: A-206, Savvy Homes Hinjewadi Phase-1, Pune MH, India 411057.
- Hobbies:
    - Bike Riding.
    - Watching Science Fiction Movies.
    - Playing Computer Games.
- Strengths:
    - Multiple Projects handling ability.
    - Quick Environment Adaptable skills.
    - Cool Temperament.
    - Quickly Grasp and Learn New Technologies.
    - Hard working and dedicated forwards to achieving the targets.
    - Strong Analytical and Problem Solving Skill to positively contribute to the Organizations.

Declaration:

All the information contained in this resume is totally valid as per my knowledge, if any defect found in my information only I am responsible for that.