Vaibhav Raheja

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Education

University of Illinois at Urbana-Champaign, *Master's Degree* 08/2023 - 08/2024
Major: Autonomy and Robotics

NMIMS' MPSTME, *Bachelor's Degree* 07/2017 - 06/2023
Major: Computer Engineering CGPA: 3.18/4

NMIMS' MPSTME, *Diploma* 07/2017 - 06/2023
Major: Computer Engineering CGPA: 3.18/4

Work Experience

Intelegent Motion Labs, *Research Developer* 08/2023 - Present
- Implementing Computer Vision Algorithms: Currently applying advanced computer vision techniques to enable real-time image processing for precise eye examinations, actively contributing to the project's core capabilities.
- Using the UR5 robotic arm to execute precise and coordinated movements essential for the examination process, ensuring its seamless integration with the optometric/ophthalmic imaging system.

All India Institute of Medical Sciences (AIIMS) Hospital, *Research Intern* 02/2021 - 05/2023
- Collaborated with a multidisciplinary team on the development and execution of a pioneering research project funded by the Indian Council of Medical Research (ICMR), resulting in a 15% reduction in surgery duration and a 20% increase in surgical precision.
- Played a pivotal role in the design and assembly of a custom 2-directional catheter and mouthpiece integrated with a camera system, contributing to successful intubation.
- **Technologies Used:** Python, 'xArm 5' robotic arm, Machine Learning, Robot Operating System (ROS), 3D modeling

Granuler: CIO Consulting, *Intern* 01/2020 – 05/2020
- Successfully implemented a CRM (Customer Relation Management) system using HubSpot CRM, streamlining workflow and increasing efficiency by 40%
- Automated CEO's tasks using UiPath for Robotic Process Automation (RPA), resulting in at least 20% saving in resourses.
- **Technologies Used:** HubSpot CRM, UiPath (Robotic Process Automation, RPA)

Projects

Intelligent Ground Vehicle Competition (IGVC), *Co-Captain*
- Managed a multidisciplinary team for this international robotics competition held in Detroit, USA. As Co-Captain of Team D.A.R.V.I.N, we achieved impressive 2nd and 3rd place rankings in the highly competitive Cyber and AutoNav Challenge categories, demonstrating our excellence in autonomous vehicle navigation in challenging environments.

Disease Detection System using Machine Learning | (*Python, Pytorch, CNN*)
- Achieved an accuracy rate of over 90% in predicting chronic diseases, including COVID-19, Pneumonia, Heart Disease, Chronic Kidney Disease, Diabetes, and various skin diseases. This system holds the potential to revolutionize early disease diagnosis.

Soft Robotics Hand | (*Arduino, 3D Modelling and Printing*)
- Developed a Soft Robotic Hand controlled by five individual stepper motors, enhancing dexterity and flexibility, with Arduino for control and 3D modeling and printing for construction.

Custom Surveillance Drone | (*Arduino, 3D Modelling and Printing, ESC Controller, Pix hawk*)
- Engineered a custom surveillance drone featuring a modular 3D-printed body and high-performance 1200KV BLDC motors, controlled via a Pix hawk Flight Controller and an ESC for motor control.

Skills

Programming: Python, C++, Robot Operating System(ROS), OpenCV, PyTorch, PID Controllers, Motion Planning algorithms, Machine Learning(ML),
Tools: Autodesk Fusion 360, Computer Aided Design (CAD), Linux, Git, Arduino, Raspberry Pi

Publications

Raheja, Vaibhav et al. (Nov. 2022). "Multi-Disease Prediction System using Machine Learning". In: *International Conference on Futuristic Technologies (INCOFT)*. URL: https://ieeexplore.ieee.org/document/10094382.