

Ragesh Ramachandran

☎ (+33) 767287082 | 📧 EnigmaRagesh | 🔗 www.linkedin.com/in/ragesh-ramachandran/ | ✉ sonuragesh18@gmail.com

Summary

I am a roboticist passionate about autonomous robots, manipulators and system development. Being involved in numerous projects in the domain right from the conceptual stage to their commissioning, I have acquired extensive problem-solving capabilities in this domain. My areas of interests include:

- ROS development
- Mobile Robotics
- Embedded systems
- Team Management

Experience

Fraunhofer IPA, Robotics and Assistance Systems

Stuttgart, Germany

RESEARCH ASSISTANT

March. 2019 - Present

- Development of deterministic/Real-time ROS packages for industrial scan and polish robots.
- Identification of safety critical modules in the package and porting them to ROS 2.0 for making the system deterministic

Ingeniarius,Lda

Coimbra, Portugal

ROBOTICS ENGINEER INTERN

July. 2018 - Sept 2018

- Developed Autonomous docking service for the recharging of STOP - "Seguranças robóticas coOperativos" Robot in ROS and Gazebo using the ROS navigation stack.

RobotCraft - Robotics Craftsmanship International Academy

Coimbra, Portugal

INTERNSHIP

July. 2018 - Sept 2018

- Worked on the development of a differential drive robot, including rapid prototyping, electromechanical design, embedded system design and embedded firmware development for sensors and drives using Arduino and ROS

Mechatronics and Intelligent Systems Research Lab

Kerala, India

RESEARCH ASSISTANT

Jan. 2017 - August. 2017

- My research work includes Prosthetic arm controlled using EMG signals, system design of Unmanned Ground Vehicles for rescue missions, Teaching pendant for industrial robotic arms.
- During my tenure at the lab, I mentored students in their final year projects, conducted workshop on embedded systems and robotics and represented the lab at a national robotic festival "Robotsavam 2017".

United Kingdom University Rover Challenge 2016

Manchester, UK & Kerala, India

TEAM LEAD

Jan. 2015 - July. 2015

- Cleared the Critical Design Round of the United Kingdom University Rover Challenge 2016 and got shortlisted among the final 14 teams
- Lead a team of 23 people and designed electronic circuits for control system of robotic arm, power management, wireless communication, sensors, drive system, system integration and development of ROS drivers for the rover.

University Rover Challenge 2015

Utah, USA & Kerala, India

EMBEDDED SYSTEM DESIGNER

Dec. 2014 - May. 2015

- Designed the embedded system of the rover and robotic arm, designed high current motor drivers, power distribution system, and perception unit consisting of IMU, Ultrasonic sensors and cameras
- Developed H-bridge motor driver using MOSFET for the rover and also designed a wireless kill switch for the rover using NRF24 module.

Education

Ecole Centrale de Nantes

Nantes, France

MASTERS IN ROBOTICS AND EMBEDDED REAL-TIME SYSTEMS

Mar. 2017 - Present

Amrita Vishwa Vidyapeetham (Amrita University)

Kerala, India

BACHELORS IN ELECTRONICS AND COMMUNICATION

June. 2013 - May. 2017

Publications

SAKSHA-Self Automated Kinematic Smart Haptic Arm

Chennai, India

INTERNATIONAL CONFERENCE ON ROBOTICS AND SMART MANUFACTURING (RoSMA2018)

2018

Design and Development of an Intelligent Rover for Mars Exploration

Washington DC, USA

THE 18TH ANNUAL INTERNATIONAL MARS SOCIETY CONVENTION

2016

An Advanced Spider like Rocker-Bogie Suspension System for Mars Exploration Rovers

Bucheon, Korea

4TH INTERNATIONAL CONFERENCE ON ROBOT INTELLIGENCE TECHNOLOGY AND APPLICATIONS (RITA)

2015

Skills

LANGUAGES

- English: Proficient (TOEFL 87)
- French: Elementary

OPERATING SYSTEMS

- Linux, ROS, ROS 2.0.

PROGRAMMING LANGUAGE

- Matlab, VHDL, Embedded C, Arduino, C++ and Python .
- Working knowledge of Git, CMake and Qt

SOFTWARES AND LIBRARY

- Experienced in Gazebo, Simulink, OpenCV, Eagle CAD and Proteus

TOOLS

- Rapid prototyping in 3D printers and CNC machines.
- Experience in PCB design and development.

NETWORK PROTOCOLS

- Solid understanding of TCP/IP, UDP, SPI, I2C and CAN protocols.

Projects

Development of an autonomous docking routine for the STOP - Robot

Coimbra, Portugal

GRADUATE STUDENT

July. 2018 - Sept. 2018

- The charging system for docking the robot was designed and prototype are developed.
- Autonomous docking service for the recharging of STOP-robot was implemented using the navigation stack of ROS.

Calibration and development of a multi-robot localization system

Nantes, France

GRADUATE STUDENT

April. 2018 - PRESENT

- Developed and calibrated the system of four IR image sensors for the absolute localization of the Turtlebots in ROS.

Hybrid localization of mobile robot using dead reckoning and magnets

Nantes, France

GRADUATE STUDENT

Jan. 2018 - Feb. 2018

- Localization of a mobile robot was performed using wheel odometry and magnet beacons and the estimation was done using Extended Kalman filter .

ASTRA -Multi-robot system integrating UAV and UGV for surveillance

Kerala, india

EMBEDDED SYSTEM DESIGNER AND SOFTWARE ARCHITECT

Jun. 2016 - PRESENT

- The embedded system for the robot was designed consisting of GPS, wheel odometer, IMU, Laser range finders and Ultrasonic sensors on ATmega 2560 MCU and firmware developed using ROS
- A Raspberry Pi was used for running ROS and detect the presence of intruders using Computer Vision

DHRUV-Disaster and Hazard Rescue Unmanned Vehicle

Kerala, india

MENTOR AND MECHATRONIC ENGINEER

Dec. 2015 - June. 2016

- A systems was developed consisting of thermal camera, sensors for measuring carbon monoxide, carbon dioxide, methane, butane, ammonia, chlorine and air quality on ATmega 2560 platform and firmware developed in ROS
- The system was integrated into a custom-made robotic platform for hazard rescue missions

SAKSHA-Development of teaching pendant for 6 DOF robotic arm

Kerala, india

MENTOR AND DESIGNER

Aug. 2015 - Nov. 2016

- A system was developed with potentiometers, Accelerometer and ATmega 2560 MCU as a teaching pendant for a 5DOF robotic arm.

References

Harsh Deshpande

Research Associate, Robotics and Assistance Systems.
Fraunhofer IPA, Stuttgart, Germany.
harshavardhan.deshpande@ipa.fraunhofer.de

Sebastien Faucou

Professor, Laboratoire des Sciences du Numérique de Nantes.
University of Nantes, France.
Sebastien.Faucou@univ-nantes.fr