Rahul R Ramakrishnan
Roboticist | Mechatronics Engineer | Freelancer

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I'm a roboticist with 3 years of hands-on experience in engineering autonomous systems, and as a part-time SEO freelancer for a few clients in India and in the UK. With a strong background in the robotics field, I have experience handling large datasets, use of off-the-shelf ML algorithms and writing my own scripts in python for handling various data for further analysis from a research work done during my postgraduate in the UK. I have operational experience with ABB Yumi, few Industrial Kuka robots and also have worked with Nao and Pepper robots.

EDUCATION

MSc by Research Robotics   2019 - 2020
University of the West of England Bristol, UK

B.Tech Mechatronics Engineering   2014 - 2018
SRM Institute of Science and Technology, India

Junior and High School, Computer Science   2002 - 2014
Kendriya Vidyalaya (KVS) Ashok Nagar, India

MODULES

Robotics Engineering, Human-Robot Interaction, Machine Learning and Predictive Analytics, Design of Electromechanical Systems Integration, Microprocessor and Microcontroller, Advanced Control Engineering, Sensors and Actuators, Digital Electronics, Design of Mechatronics Systems, Linear Integrated Circuits, Object Oriented Programming, Fluid Power Systems and Control.

TECHNICAL SKILLS

Programming Languages: C++, EmbeddedC, Python, MATLAB & Simulink, LabView, LaTeX
Software's: AutoCAD, SolidWorks, Eagle
IDE's: Arduino, Processing, Microsoft Robotics Developer Studio, Microsoft Visual Studio
Operating Systems: Windows, Linux (Ubuntu), Robotics Operating System (ROS)
Hardware's: Arduino (Uno, Mega, Nano), Raspberry Pi, beagle Bone Black, NI MyRIO, NI DAQmx, NI single-board RIO (DaNI robot platform), 3D Printers, Oscilloscopes, Lathes, Power Saws, Soldering Irons.

LEADERSHIP & WORK EXPERIENCE

Unmanned Systems Lead   July 2019 - March 2020
MTJB Engineering Ltd., Future Space, Bristol, UK
● I was the Technical Lead for the project THUNDERBIRD, an innovative patented modular unmanned aerial system for use in a multitude of environments including defence, first response and construction.
● I worked with a team of product designers, mechanical and electronics engineers starting from the design stage to system integration and initial field testing. I also gained team managerial and time management skills.

System Engineer and Computer Vision Head   March 2015 - July 2018
SRM ASV (Autonomous Surface Vehicles)
● As a system engineer, I developed the overall system architecture for the ASV/USV and was also responsible for the integration of all the subsystems. I was also responsible for various managerial works. (January 2017 – July 2018)
● Implemented perception algorithms to process raw data from Sick LIDAR and Windows Life Cam, segment and classify obstacle points and further used the processed information to implement the goal navigation with obstacle avoidance. (June 2016 – December 2017)
● Custom Designed and fabricated a power distribution board with a protection circuit using Eagle for various onboard low and high voltage sensors and high current actuators from a single LiPo battery pack. (March 2015 – May 2016)

Technical Internship   July 2016
Ramkay FIAT
● FIAT exclusive Dealer and Service provider for cars, my role during the internship was to check the various control systems and to maintain and service some of the elements of their cars.

Technical Internship   June 2016
Defence Research and Development Organization (DRDO), Government of India
● Visited all the divisions in Combat Vehicles Research & Development Establishment and spent some time learning about the current research works carried out in each division on the first couple of days.
● I was responsible for studying the various control systems used on their three types of unmanned ground vehicles (Mine detection, rescue and surveillance), Autonomous Systems Division, CVRDE.

Electronics Design Engineer   March 2016 - August 2016
Feynman Technology Pvt. Ltd. (42 Labs)
● I was working on the pedal project, an automated cycle sharing system. As an electronics design engineer, I designed and simulated a circuit using MultiSim for an automated locking and monitoring system.

Student Ambassador   January 2016 – March 2017
LEMA LABS PVT LTD., Indian Institute of Technology Madras (IIT)
● Extensively worked alongside the corporate head in developing and executing several on ground marketing campaigns. As a coordinator, I helped them to organize and execute several workshops and seminars as well.

RESEARCH EXPERIENCE & PROJECTS

MSc Research Robotics Thesis   September 2019 - September 2020
University of the West of England Bristol, UK
Research Title: "Human's Social Signals during Error Situations in Human-Robot Interaction"
Advisor: Dr. Manuel Giuliani (Professor in Embedded Cognitive AI for Robotics)

Visiting Research Student (Semester Abroad Program)   October 2017 - February 2018
Tokai University, Shonan Campus, Hiratsuka, Japan
Research Title: "Modeling and validation of a Continuum Robot Backbone Design with variable stiffness inspired from elephant trunk"
Advisor: Dr. Yoshio Yamamoto (Professor and Director, Department of Precision Engineering)

Minor Project, Department of Mechatronics Engineering   January 2017 – May 2017
SRM Institute of Science and Technology, Kattankulathur, India
Research Title: "Mechatronics design approach based implementation of a Ball-Plate balancing system"
Advisor: Mr. Karthik M R (Assistant Professor)

Minor Project, Department of Mechatronics Engineering   September 2014 - October 2014
SRM Institute of Science and Technology, Kattankulathur, India
Research Title: "Design and Implementation of a Ball-Beam balancing system"
Advisor: Mr. Joe Johnson (Assistant Professor)

PUBLICATIONS

D.E. Cahya, **Rahul R Ramakrishnan**, Manuel Giuliani, "Static and Temporal Differences in Social Signals Between Error-Free and Erroneous Situations in Human-Robot Collaboration". In: Salichs M. et al. (eds) Social Robotics, Lecture Notes in Computer Science , Springer, Cham, 11876, ICSR 2019

Shravan K, Govind Aadithya R, **Rahul R Ramakrishnan**, Vijay Arvindh and Sivanathan K, "*A look at Motion Planning for Autonomous Vehicles at an Intersection*", 21st IEEE International Conference on Intelligent Transportation Systems (ITSC), Hawaii, USA, November 2018

Azamat Yeshmukhametov, Zholdas Buribayev, **Rahul R Ramakrishnan**, "*Modeling and validation of a Continuum Robot Backbone Design with variable stiffness inspired from elephant trunk*", 5th International Conference on Mechanics and Mechatronics Research (ICMMR), Tokyo, Japan, July 2018

HONORS & AWARDS

International RoboBoat Competition   June 2018
AUVSI Foundation and Office of Naval Research, Daytona Beach, Florida, USA
● Won the Judges Awards: Tenacity Award. (SRM ASV)

Research Day, Department of Mechatronics Engineering   February 2016, 2017
SRM Institute of Science and Technology, Kattankulathur, India
● Paper Presentation entitled "Agricultural Field & Plant Health Investigator" – 2016 and "Railway Safety System" – 2017 and cleared the final phase in both consecutive years.

National Level RoboWars Competition   September 2016
Vellore Institute of technology, Vellore, India
● Won 2nd Prize. I played the role of Team Leader, system integrator and robot controller for the project, leading a team size of 18 members.
● We designed, carried out various analyses, fabricated and tested a Wedge type robot.

NIYANTRA 2015 – Student Design contest   November 2015
National Instruments, Bengaluru, India
● 5th Rank National Level out of 850 teams. This project was sponsored by National Instruments.
● Designed and developed a semi-autonomous Quad-rotor using the National Instruments Graphical System Design, enabled by the LabVIEW RIO Architecture.
● A five member team and I was the project lead. Project Advisor: Mr. Sivanathan Kandhasamy

Rajya Puraskar Award   June 2010
Bharath Scouts and Guides, India
● Received The Bharath Scouts and Guides Rajya Puraskar Award from Pune state chief commissioner and state secretary.

VOLUNTEERING EXPERIENCE

President   September 2019 – May 2020
UWE Tamil Society, Bristol, UK
● I started the Tamil Society during my studies at UWE Bristol mainly to provide a community to all Tamil students and share about my language and culture with students from other parts of the world.
● Currently, we have 50+ active members and we have received the first global cultural exchange fund of £250 from Student's Union, UWE Bristol. First and only society to get this funding among 113+ societies in UWE. We won the Best New Society of the Year Award.

Design Team Member   April 2016 – June 2018
Association of Mechatronics Engineers, SRM Institute of Science and Technology
● My responsibility includes designing the invitation for the events organized by AME and preparing the technical materials required for the workshops organized.
● Designed a website for the department of mechatronics engineering, SRM IST.
● Also hosted and organized one workshop on "Recent trends of mechatronics in machine tool and manufacturing industries" -19 th February 2018.

Technical Council Member   February 2015 – July 2018
Robotics and Artificial Intelligence Foundation (RAAIF)
● Handled the database management of engineering industries. Organized various robotics & AI events across India. Generated reports of engineering exhibitors and visitors and promoted robotics and AI expo & conference events.
● Developed a robotics curriculum for junior and high school students and Created lesson plans with activities for easy understanding.

General Body Member   August 2016 – October 2017
Student council cabinet, Marine Technology Society (MTS)
● Organized a dive deep program for junior school students. Also coordinated with my team members organizing various technical workshops on-campus.

LANGUAGES

Tamil	English	Hindi	Japanese
Native or Bilingual	*Professional proficiency*	*Limited proficiency*	*Elementary proficiency*