Rajendra Singh

Fourth year
Computer Science and Engineering
Indian Institute of Technology, Palakkad

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SUMMARY

- **Skills**   : AI and Robotics.
- **Intern**   : UST Global, Researshala and IIT Madras.
- **Project**   : SLAM(AGV), Swarm(UAV), Robotic Manipulator
- **Position**   : Former Head, Robotics club, IIT Palakkad
- **Achivement** : KVPY and AWES fellowship, IIT-Jee(99.3 percentile)

EDUCATION

Program	Institution	%/CGPA	Year
B. Tech	Indian Institute of Technology, Palakkad	7.19 (Till VI Semester)	2016-Present
XII	Delhi Public School, Udaipur	89%	2015-16
X	Delhi Rajasthan Public School, Rajsamand	96%	2013-14

TECHNICAL SKILLS

Title	Skills
Robotics	SLAM, Motion planning, Perception, Swarm robotics (PSO,ACO,ABC,BFO,AIS,BA,MSO,etc.), Control and Manipulation, Manipulator kinematics and dynamics
Reinforcment learning	Q-learning, TD, Sarsa, Monto carlo, Multi-armed bandit, DQN, DDPG, Genetic algorithm
Data science	NLP, CNN, RNN, Analysing unstructured data, Sentiment analysis, Topic modeling
Languages	C++ , Python and Java
Software/Tools	ROS1/2, Moveit, Gazebo, V-REP, Flexbe, Matlab, AutoCAD, Fusion 360, Keil, Atmel studio, Eagle
Hardware	Rplidar A2M8, Realsense D435, Nvidia Jetson(Tx2, nano), Raspi3B+, GstarIV GPS, Zybo-zyng FPGA, KL25Z arm cortex-M0+ , Atmega16/32/2560, NodeMCU, GSM, Pyboard, OpenMV, PlutoX

WORK EXPERIENCES

- **Summer intern, UST Global, Trivandrum**   May-July, 2019
  Studied various slam algorithm and implemented it using ROS by fusing sensor data of lidar and 3d depth camera. Later, I worked on control and planning of robotics maniputor for vision based pick and place task.

- **Data Science intern, Researchshala, Chandigarh**   May-July, 2018
  Worked on projects related to transfer learning, topic modelling, web and pdf scraping, extrating and analysing useful information from unstructured data.

- **Vistaar Program, IIT Madras**   May-June, 2017
  Studied state of art 3d printing technology and then built prusa i3 3d printer and a robotic arm using this printer.

SELECTED PROJECTS

- Implemented **slam** on automated guided vehicle (AGV) by sensor fusion of data from 2D lidar and 3D camera.
- Vision based control and trajectory planning of **robotics manipulator** using pointcloud data.
- Path planning for **swarm** of two drones, for Smart India Hackerthon 2019.
- Built **EOG** based typing system for individual with motor neuron diseases.
- Built automated **toilet cleaning** robot, Ranked 6th in Inter IIT 2017-18, IIT Madras.
- Build model for **satellite image classification** using just 14 images, for Inter IIT 2018-19, IIT Bombay.

  To know more about the projects, please visit: https://iamrajee.github.io/projects/

RELEVANT COURSES

Area	Courses
Maths	Linear algebra, Probability, Stochastic Process and Statistics, Differential and Integral Calculus
CS	DS and Algorithms, DBMS, OS, Computer networks, Compilers, Parallel programming
AI	Principle of machine learning, Deep learning, Reinforcement learning
Robotics	Robotics manipulation and control, Embedded system, Signal and system, Engineering mechanics, Auto CAD, Fusion 360, Biomedical and Instrumentation

POSITION OF RESPONSIBILITY

- **Head of Robotics Club, IIT Palakkad**   July 2018 - May 2019
  - ► Teach basics and advance concept of robotics.
  - ► Mentor student projects.
  - ► Encourage student to participate in regional and national competition.
  - ► Prepare and lead team in competitions.

- **Event cordinator, Rajasthan-Assam, Ek Bharat Shreshtha Bharat, IIT Palakkad**   January 2019
  - ► Organised the cultural event of Ek Bharat Shreshtha Bharat of Rajasthan-Assam under goverment of India, at IIT Palakkad.

SCHOLASTIC ACHIEVEMENTS

- Winner, Kaizen Robotics Competition, Lema labs.   2017
- Awarded KVPY Fellowship by DST, Govt. of India.   2016
- Qualified IIT-Jee Advanced 2016 with a percentile of 99.3 amongst a total of 1.2 million students.   2016
- Best Student of Year Award 2014–15, Rajsamand District Private Education Committee.   2015
- Awarded Merit Scholarship Class X, Army Welfare Education Society(AWES).   2014

REFERENCES

- **Mr. Ashok Nair**
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- **Mr. Shubham Jain**
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