Chirag Makwana

Robotics Engineer

Pune, Maharashtra, India

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Experience

Exadatum + Xarvis Intelligent System Labs

Pune Maharashra

Robotics Engineer — *Mar. 2020 - Present*

- Responsible for developing end to end pipeline for setting up drones on AWS-IoT core using cloud-formation and building pre-configured Linux image for Raspberry-pi
- Developed dockerized operating system based on ROS for mavlink based flight controller(Ardupilot/PX4) with development and release environment features.
- Developed ROS packages for Geo-Fencing, Handling I2C device data and streaming data to cloud via mqtt protocol and aws kinesis data stream.
- Developed an api wrapped on websocket and mavros to implement on aws-lambda for fontend and drone-os communication with offline syncing cpablity

Futuring Design Pvt. Ltd.

Pune Maharashra

Culsultant - Mechatronics (Part Time) — *Sep. 2019 - Mar. 2020*

- Responsible for Research & development and building POCs for a sport medical device.
- Developed a hardware and GUI software firmware for sport medical device.
- Wrote python based application to locally store, process and stream data to aws

Futuring Design Pvt. Ltd.

Pune Maharashra

Graduate Engineer Trainee — *Aug. 2018 - Aug. 2019*

- Responsible for developing a proof of concept of new products.
- Developed POC for Sport and Medical Device.
- Developed application for capturing data from IMU and load cell, Storing data on SD card and post processing data using python.

Projects

Quadruped robot leg inverse kinematics and gait planning(Simulation)

Robotics

Personal project — *Aug. 2018 - Sept. 2018*

- Platform used: ROS, V-REP
- Modeled on Solid Works.
- Simulated in V-REP
- Kinematic Model of Gaits: Tripod gait.
- Leg DOF 3

Design, Development and Kinematic Modeling of 10 Joint Modular Snake

Robotics

Mini project — *Aug. 2017 - Oct. 2017*

- Platform used:ROS, V-REP
- Modeled on Fusion 360.
- Programmed in ROS-Kinetic
- Simulated in V-REP
- Kinematic Model of Gaits: Serpentine motion, Side Winding motion
- Project Link: https://github.com/chiragmakwana0296/Snake_Robot_ROS

Design, Analysis, Kinematic Modelling and Simulation of Six Axis Robotic Arm

Robotics

Major Project — *Oct. 2017 - May. 2018*

- Payload Capacity: 0.5 Kg.
- Platform used: ROS, V-REP.
- Modeled on Solidworks.
- Programmed in ROS-Kinetic.
- Simulated in V-REP
- Microcontroller: Arduino ATMEGA 2560.
- Project Link: https://github.com/chiragmakwana0296/six_axis_robot_ROS

Education

Maharashtra Institute of Technology — *Pune, Maharashtra, India*

M.Tech Mechatronics and Automation — *2019-2021*

- Pursuing

Marathwada Mitra Mandal's College of Engineering — *Pune, Maharashtra, India*

B.E. In Mechanical Engineering. — *2015-2018*

- 71 %

MIT Polytechnic — *Pune, Maharashtra, India*

Diploma In Mechanical Engineering. — *2012-2015*

- 81 %

Skills

ROS: ●●●●○

AWS (IoT-Core, Greengrass, S3, Lambda, Cloud-formation)**:** ●●●●○

Programming Languages (Python, C, Embedded-C, Shell)**:** ●●●●○

CAD Software (Fusion360, SolidWorks, Catia, NX Siemens)**:** ●●●●●

Simulation(Vrep, Gazebo): ●●●●○

Micro-controller/Processors (Raspberry-Pi, Arduino): ●●●●○

Docker: ●●●●○

Git: ●●●●○

Shell-scripting: ●●●◐○

Achievements, Awards & Certification

2015	**1st Place**, Achieved First Rank in Softtech Robozest, International level Robotics Competition, Organized by IIT-Delhi	*IIT-Delhi, India*
2013	**3rd Place**, Secured 3nd Rank in Diploma 2nd Year	*MIT-SSPP, Pune*
2015	**Certification**, C Programming (Certification Maharashtra Infotech)	*Mumbai India*
2014	**Industrial Training**, BOSCH 3-Days Training on Latest Technology on advance Automotive Engineering.	*Pune India*
2017	**Workshop**, Attended Workshop Conducted by Sofcon India Pvt. Ltd. on the domain Industrial Automation	*MMCOE Pune*

Extracurricular Activity

Robocon team (2015-16) — *MMCOE, Pune.*

Robot Architecture team lead — *2015-2016*

- Represented MMCOE Collage in national level robotic event Robocon 2016(Clean Energy Recharging the World)
- Responsible for Design, Kinematic modelling, simulation and overall development of architecture of Hybrid Robot.

National level e-Yantra Robotics Competition — *IIT- Bombay*

Participant — *2016-2017*

- Represented MMCOE Collage in National Level robotics event e-Yantra conducted by IIT-Bombay. My team had worked on theme Bothoven, in which we used Research platform Firebird-V robot based on Atmega 2560.

International level Robozest Robotics Competition – IIT-Delhi — *IIT Delhi*

Winner 1st Position — *2015*

- Represented MIT-SSPP Collage in International level robotics competition conducted by Robo Zest, SportTech and IIT-Delhi and Achieved 1st Rank in Competition.