ARKAJYOTI BASAK

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EDUCATION

THAPAR INSTITUTE OF ENGINEERING & TECHNOLOGY Patiala, India
B.E. in Mechanical Engineering 2018-2022(Expected)

WORK EXPERIENCE

OPEN SOURCE DEVELOPER, URJC, SPAIN Feb'21-Present
JdeRobot develops framework based on ROS, Docker & Django to simplify learning AI/CV

- Working on visual-based Navigation of UAVs using visual landmarks.
- Drone Package Delivery robot based on PX4, MAVLink, ROS, Gazbeo.
- Maintain the drone section at *RoboticsAcademy*.

GOOGLE SUMMER OF CODE 2021, JDEROBOT May'21-Aug'21

- Built the Robotics Academy Docker Image for ROS-Noetic. *Link*
- Extended 9 RoboticsAcademy exercises from ROS node to web-based template.
- Worked on Python, C++, ROS, HTML/CSS, VanillaJS, Docker, OpenCV.

FREELANCE NLP @ *atalki.com* Feb'21-March'21

- Developed an algorithm to break long sentences into short multiple sentences. *Link*
- Worked on PyTorch, T5-Transformer, NLTK, Dependency Parser, TF-IDF Vectorizer.

LA FONDATION DASSAULT SYSTÈMES, INDIA Feb'21-Aug'21

- Designed and analyzed a foldable motorcycle helmet.
- Worked on 3DEXPERIENCE, SolidWorks, xDesign, SIMULIA.

PROJECTS

AWESOME SLAM ROS PACKAGE 2021

- Sensor fusion of 2D-LiDAR and the robot odometry data. *Link*
- Landmark-based **EKF-SLAM** and **UKF-SLAM** on Turtlebot3.
- Implemented using ROS, Gazebo, C++.

DRONE 3D MAPPING & NAVIGATION 2021

- Developed a navigation algorithm for autonomous UAV. *Link*
- Implemented **sensor fusion** of RGB-D Camera and Velodyne 3D LiDAR data.

ROBOTICS ACADEMY EXERCISES 2021

- **Obstacle Avoidance** based on Local navigation with Virtual Force Field algorithm. *Link*
- Localized Vacuum Cleaner based on **Coverage Path Planning** algorithm. *Link*
- Line Following Robot based on **PID** Controller. *Link*

AI LEARNS TO PARK 2020

- Developed an algorithm for a car to self-park in a parking lot using modified Rainbow-DQN.
- Implemented using Unity3D, Python, C# *Link*

LINE FOLLOWING ROBOT USING NVIS3302ARD 2019

- Project completed as a part of ED2, CSE Department, TIET.
- Worked on Arduino ATMega 328P, gyroscope, accelerometer, IR, ultrasonic, and zigbee.

SKILLS

Python	C++	Bash	ROS	Gazebo
Unity3D	OpenCV	PyTorch	TensorFlow	SolidWorks
Blender	Html	Css	VanillaJS	Docker