# Arkajyoti Basak

📞 9051902862
✉ arkajbasak1211@gmail.com

⌨ **iamarkaj**
🌐 **arkajyotibasak.tech**

## EXPERIENCE

**Elektrobit India Pvt. Ltd.** | Executive Engineer                                      Jan 2022 - Present
  Full time Software Engineer at ADAS team. Wrote test cases for the Honda project. Working on Code Generators, CMake interfaces, Google Tests, PlantUMLs, ROS2.

**JdeRobot Spain** | Open Source Developer                                      May 2021 - Present
  Mentoring 1 project at Google Summer of Code 2022. Created drone-based exercises, which students of URJC use to learn computer vision and robotics. Built the **Robotics Academy** Docker Image for ROS Noetic, and VNC-based web template. Worked on PX4-Autopilot, MAVROS, ROS, and Gazebo.

**Upwork Inc.** | Freelance Robotics Engineer                                      Jan 2021 - Jan 2022
  Completed 10+ projects. Developed Robotics solution for startups and small businesses and helped them grow. Worked on Depth Estimation, ORB-SLAM2, Graph SLAM, MASK R-CNN, YOLOv5, Deep Sort, NVIDIA Isaac SDK, ROS, Gazebo.

**Dassault Systèmes India** | Design Engineer Intern                                      Feb 2021 - Aug 2021
  Designed a foldable motorcycle helmet and performed static structural analysis. Showcased our product at the Industry-Academia Connect Competition, and won funding by Dassault Systèmes for the physical prototype.

## PROJECTS

**SLAM using Turtlebot3**                                      2021
  - A small C++ and ROS project - **awesome slam** to implement SLAM based on EKF & UKF.
  - Built a feature detection pipeline of points clustering, circle fitting, and circle classification.
  - Compared between the performance of EKF & UKF based pose estimation for KITTI dataset **here**
  - Checkout the blog **here**

**Robotics Algorithms**                                      2021
  - Developed proof of concepts with Artificial Potential Field and coverage path planning algorithm.
  - Worked with PID controllers on a line following robot.
  - Checkout the blog **here**

**AI Learns to Park**                                      2020
  - Created a 3D parking-lot game in Unity simulator using Python, and C#.
  - Trained an ANN using Rainbow-DQN algorithm for the agent to self-park.
  - Worked on setting up the communication networks using socket networking interface.
  - Checkout the blog **here**

## EDUCATION

**Thapar Institute of Engineering & Technology**                                      **Patiala, India**
B.E. in Mechanical Engineering                                      Jun 2018 - Jun 2022

**St. Xavier's Institution**                                      **Kolkata, India**
ISC Board, XII Senior Secondary, Science                                      Jun 2015 - Jun 2017

## TECHNICAL SKILLS

**Programming & Scripting** : C++, Python, Bash, CMake
**Frameworks** : Git, Docker, OpenCV, PyTorch, TensorFlow
**Robotics Tools** : ROS1, ROS2, Gazebo, Unity3D
**3D Softwares** : SolidWorks, Ansys, PTC Creo, Blender

## RECOGNITION

  - Awarded first prize at Capstone Project 2021 at college.
  - Selected at Google Summer of Code 2021 as Student, and 2022 as Mentor.
  - Among top 4 out of 15+ projects to win Industry-Academia Connect Competition 2021 by Dassault Systèmes.