

**PRANAY MATHUR**Course : **B.E. (Hons.)**, Electronics and Instrumentation, 2021

Email : f20170487@goa.bits-pilani.ac.in

Mobile : 9999843090

CGPA : 8.35

**ACADEMIC DETAILS**

COURSE	INSTITUTE/COLLEGE	BOARD/UNIVERSITY	SCORE	YEAR
CLASS XII	Army Public School,Dhaulta Kuan	CBSE	94.8 %	2017
CLASS X	Army Public School,Dhaulta Kuan	CBSE	10 CGPA	2015

SUMMER INTERNSHIP / WORK EXPERIENCE

Undergraduate Researcher, University of Nevada, Reno	Jul 2020 - Present
<ul style="list-style-type: none"> Working in the Autonomous Robots Lab under the supervision of Prof.Kostas Alexis Domain is development of perception stack of Micro Aerial Vehicles 	
Technical Intern, KPIT Technologies	May 2020 - Jun 2020
<ul style="list-style-type: none"> Worked on Object Detection using Deep Learning through Sensor Fusion of LiDAR, RADAR and Monocular Camera data Implemented using Tensorflow, Python,C++ and ROS 	
Project Intern, Central Electronics Engineering Research Institute,Pilani	May 2019 - Jul 2019
Project Title:Autonomous Navigation of Drones using SLAM and Object Avoidance using a Depth Camera <ul style="list-style-type: none"> Worked on embedded systems ,linux based flight controllers,(Robot Operating Systems)ROS,Intel Realsense Cameras and algorithms for autonomous traversal and Simultaneous Localisation and Mapping in UAVs in GPS denied environments Used Intel LattePanda SoC Worked under Dr.S.A Akbar,Chief Scientist CEERI PILANI 	

PROJECTS

Object Detection using Sensor Fusion of RADAR, LiDAR and Monocular camera for Autonomous Cars - Artificial Intelligence	May 2020 - Jun 2020
<ul style="list-style-type: none"> Worked on sensor fusion algorithms for 3D pointclouds and 2D images Implemented entire algorithm using Python, C++ ,tensorflow and ROS Built custom model architecture and aggregation function to for efficient detection in real time Implementation available here: https://github.com/Matnay/KPIT_Fusion_Object_Detection_DL 	
Drone Control by fusion of EEG and Eye-Tracking data using Extended Kalman Filter - Robotics, Electronics, Software	Jan 2020 - Jun 2020
<ul style="list-style-type: none"> Formulated input pipeline for EEG data and subsequent classification using SVM algorithm Acquired eye tracking data using Image processing techniques Carried out fusion of data using an Extended Kalman Filter Carried out under the Supervision of Dr.Pethe, HoD EEE Dept. Implementation available here:https://github.com/Matnay/Quad_BCI_EYE_TRACK_FUSION_EKF 	
Drone Delivery Using SLAM and Object Avoidance - Emedded Systems,Software Development,Aerial R	May 2019 - Jul 2020
<ul style="list-style-type: none"> Project selected for funding by EEE Department BITS Goa Developing an algorithm for autonomous navigation of drone sin GPS denied environments using Simultaneous Localization and Mapping and a depth sensing camera for object avoidance. Development of a custom flight controller and custom computer vision algorithms using an Nvidia Jetson TX2 Implementation available here: https://github.com/Matnay/Autonomous-Drone 	
IC Tester - Microprocessors and Interfacing	Jan 2019 - May 2019
<ul style="list-style-type: none"> Project completed successfully as part of microprocessors and interfacing course Used 8086 microprocessor to design an IC tester circuit that included simulation in proteus . Worked under Dr.Anupama,EEE Dept.BITS Goa 	
Drone Control using Brain Wave Mapping - Cognition,Aerial Robotics,Electronics	Dec 2018 - Present
<ul style="list-style-type: none"> Project was selected for funding by EEE Department BITS Goa The project used brain wave mapping to ensure that the user could control a drone using just his thoughts The data was transmitted via bluetooth and interfaced using an Arduino Mega Worked with Processing ,Python and DroneKit 	
Human Machine Teaming-DRDO - Electronics,Aerial Robotics	Jun 2018 - Apr 2019
<ul style="list-style-type: none"> Developing autonomous Swarm algorithms and integrating them with human intelligence 	
Project Kratos - University Rover Challenge - Communication	Apr 2018 - Present
<ul style="list-style-type: none"> Worked in the communication and Interfacing Sub-system on the Rover Worked on setting up a 10 km range robust and failsafe communication system Worked on Interfacing other subsystems such as autonomous sub-system and Science and Life-Detection Sub-System to the main system and relaying data with minimal lag and latency Implementation available here: https://github.com/Kratos-The-Rover 	

Subjects / Electives	Microelectronic Circuits, Control Systems, Introduction to Computer Programming, Electronic Devices, Microprocessors And Interfacing, Digital Design
Technical Proficiency	Java, C Programming, Digital Electronics, ROS, Python3, Digital Designs, Processing, Linux, Embedded Systems, Python, Cadence Virtuoso, Github, Automation, Assembly Language, Raspberry Pi, C++ Language, Arduino, Proteus, Verilog

POSITION OF RESPONSIBILITY	
Teaching Assistant (FDTA) - Birla Institute of Technology and Science, Pilani, Goa Campus	Jan 2020 - Jul 2020
<ul style="list-style-type: none"> Selected to be a First Degree Teaching Assistant for the course Micro Electronics. Tasks included formulating Lab assignment questions and solutions and grading Lab Assignments . 	
CTE Instructor - CTE BITS Goa	Aug 2019 - Dec 2019
<ul style="list-style-type: none"> Teaching the course, Introduction to Aerodynamics and Aviation Course content includes electronics involved in drones,flight controllers and RC planes 	
Treasurer - Aerodynamics Club Bits Goa	Jul 2019 - Jun 2020
<ul style="list-style-type: none"> Involved handling all club finances and management of monetary resources Managed 50 undergraduate students projects and club activities 	
Inventory Head - Aerodynamics Club ,BITS Goa	Jun 2018 - Jun 2019
The Position required handling the clubs Inventory,acquisition of new inventory and making sure all inventory was in proper working order	

CERTIFICATIONS		
CERTIFICATION	CERTIFYING AUTHORITY	DESCRIPTION
State Estimation and Localization for Self-Driving Cars!	Coursera	
Technical Analysis of Stocks	Quark Summer Technical Projects	
Project: Computer Vision - Image Basics with OpenCV and Python	Coursera	
C programming	CTE,BITS GOA	
Python for Data Science and AI	Coursera	
Project: Support Vector Machines with scikitlearn	Coursera	
Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning	Coursera	
Computer Vision	Coursera	
ROBOTICS	CTE,BITS GOA	

SCHOLARSHIPS	
Army Welfare Education Society-ESSA	Jul 2018

AWARDS AND RECOGNITIONS	
Prof.Suresh Ramaswamy Memorial Award BITSAA International	Oct 2019
Won the prestigious award for developing an autonomous obstacle avoiding drone that can also be controlled via the brain.It has depth sensing capabilities along with 3d map reconstruction using octomaps and ROS	

COMPETITIONS	
uC Mania - Electrify- Quark 2020	Feb, 2020
<ul style="list-style-type: none"> Runner Up in uC Mania - Electrify, a competition on designing circuits, algorithms and schematics according to a given problem statement and implementing the final solutions on an Arduino based microcontroller. 30 teams from colleges around the country competed 	
MARS Society- Indian Rover Challenge 2020	Jan, 2020
<ul style="list-style-type: none"> Ranked 10th among 35 initial teams from all over the world in the Indian Rover Challenge, 2020 Designed and built our own MARS rover capable of carrying out complex tasks Part of Communication and Interfacing subsystem 	
Mayday Mystery - Quark 2018	Jan, 2018
<ul style="list-style-type: none"> Won an Inter-College General Aviation Quiz and Aircraft strategy Competition as part of the Tech Fest, Quark 2018 More than 45 participants from all over the country 	

VOLUNTEER EXPERIENCE	
Academic Undergraduate Studies Division (AUGSD) - Role: Coordinator-Registration Cause: Education	Aug 2019 - Present
<ul style="list-style-type: none"> Headed the Registration Team for AY 2019-2020 to ensure smooth functioning of distribution of courses Automated and introduced multiple innovations to streamline the process of Student Registration 	

LANGUAGES KNOWN

Hindi, english