SARTHAK GUPTA

Delhi, India
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EDUCATION

Netaji Subhas Institute of Technology, University of Delhi *2016 - Present*
Bachelor in Engineering
Electronics and Communication Engineering (ECE). CGPA: 7.76/10

Happy School, Delhi *2013 - 2015*
High School. Overall Percentage: 95%

WORK EXPERIENCE

Compcarta Solutions Pvt. Ltd. June 2019 - Dec 2019
Intern, Software Developer

- Created Visual Studio Tools for Office (VSTO) Add-ins for PowerPoint to implement an electronic circuit designer using C#.
- Designed a user interface using windows forms to access the functionalities of the add-ins.

NSIT Solar Car Concept May 2017 - May 2019
Vehicle Propulsion Lead

- Designed the electrical subsystem of the fifth solar car of NSIT.
- Contributed to the development of in car telemetry system. Utilized Lopy communication module as transceiver to transfer essential information from the car to the team including battery voltage, state of charge, battery and solar panel temperature. This was done using an omnidirectional antenna having a range of 1.5 - 2 km.
- Represented India at iLumen European Solar Challenge 2018, organized at Circuit Zolder, Belgium.

ACADEMIC PROJECTS

Autonomous drone for indoor mapping Dec 2019 - Present

- Performed drone simulation in gazebo using ROS and px4 SITL.
- Used realsense camera to get the depth map and localize the drone in the indoor environment.

Road detection for autonomous driving using fusion June 2019 - Dec 2019

- Researched various techniques for fusion of different probabilistic models for road segmentation.
- Used Conditional Random Fields (CRF) method for fusion of a CNN based road detection model and V-Disparity based depth model in python.
- Tested and compared the computed outputs with the state of the art methods.

Game of Drones Competition June 2019 - Nov 2019

- Performed a literature survey on bio-inspired algorithms for drone path planning.
- Implemented A* path planning algorithm for a drone in a 3-D map in Python.
- Competed in a simulated drone race with the help of ground truth poses of opponent's drone.

Jackal OS - A C# Based Operating System Nov 2018 - Aug 2019

- Created an Operating system using C# Open Source Managed Operating System (COSMOS) and virtual machine. It includes a GUI, paint application and Notepad.
- Added a text renderer with functionalities of alphanumeric typing, spacing and backspacing characters.

Underwater Image Color Correction and Enhancement May 2018 - June 2019

- A robust linear color correction method was proposed which restores the original colors of an underwater image by removing the dominant blue–green curtains present in underwater images.
- Good results were obtained on MATLAB by using histogram stretching for contrast enhancement and unsharp masking for feature extraction. .

Microstrip antennas May 2016 - June 2017

- Designed and simulated a microstrip antenna for wideband frequency range including 5G in High Frequency Structure Simulator (HFSS) software.
- Hand fabricated a 4cm x 4cm fibonacci inspired microstrip antenna using dual-side copper board with FR-4 substrate and ferric chloride and verified the experimental results with simulated results.

PUBLICATIONS

- "**Depth Meets CNN: A Fusion Based Approach for Semantic Road Segmentation**" published in International conference on Machine Learning (ICML) 2020 workshop on AIAD.
- "**Nature Inspired Golden Spiral Super-Ultra Wideband Microstrip Antenna**" published in Asia Pacific Microwave conference (APMC) 2018. [DOI: 10.23919/APMC.2018.8617550]
- "**Effect of Feedline Tapering on the performance of Super UltraWideband Circular Monopole Microstrip Antenna**" published in i-Antennas Innovation and Modern Technologies (iAim) 2017. [DOI: 10.1109/IAIM.2017.8402556]

HONORS AND REWARDS

- Certificate of Merit for poster presentation in i-Antennas Innovation and Modern Technologies (iAim) 2017 conference.
- Acknowledged with certificate of merit from Smriti Zubin Irani, former minister of human resource development, government of India for performing exceptionally well in class XII.
- Received running Parliamentary Shield and Trophy for standing first in the 49^{th} youth parliament competition 2014-15, India.
- Secured second position in Times of India NIE Dance Mania competition 2013-14.

RELATED COURSEWORK AND TECHNICAL SKILLS

- **Courses**: Mathematical Statistics, Numerical Methods, Computer Networks, Design and Analysis of algorithms, Probability Theory and Communication, Data Structures, Control Systems.
- **MOOCS**: Machine Learning-MIT Open Courseware, RL(University of Alberta) coursera certification, Statics and Mechanics-NPTEL certification, Introduction to Airplane Performance-NPTEL certification.
- **Languages**: Python, C#, C++, C, MATLAB
- **Tools and Softwares**: Linux, ROS, Visual Studio, Ansys Fluent, Ansys HFSS, Git, EagleCAD, LaTeX