Raghav Arora

+91 9897597761
+91 8474975691
f20171016@pilani.bits-pilani.ac.in
RAraghavarora

Education

2017–2022 **B.E. (Hons.) - Electrical and Electronics Engineering + MSc.(Hons.) Chemistry**, *Birla Institute of Technology and Science*, Pilani, *(CGPA: 8.64)*.

2017 **CBSE (Class XII)** , *KV ONGC*, Dehradun, *(Percentage: 88%)*.

2015 **ICSE (Class X)** , *St. Thomas' College*, Dehradun, *(Percentage: 91.6%)*.

Experience

January – August, 2020 **Teaching Assistant**, *Principles of Economics* , BITS Pilani, Pilani.

May – July, 2020 **Teaching Assistant**, *Practice School Division*, BITS Pilani, Pilani.

April 2019 – April, 2020 **Projects' Head**, *Department of Visual Media*, BITS Pilani.

May – July, 2019 **Research Internship**, *Indira Gandhi Centre for Atomic Research*, Kalpakkam.

Jan, 2019 – Jan, 2020 **Backend Developer**, *Society for Students' Mess Services (Reg No 32/ JHU 2012-13)*, BITS Pilani.

July 2018 – July 2019 **Backend Developer**, *Department of Visual Media*, BITS Pilani.

Key Projects

Investigation of image mosaicing techniques for UAV navigation (ongoing)
Guide: Dr. Meetha V. Shenoy

Project started with the literature review of existing image mosaicing techniques for navigation of unmanned aerial vehicles, followed by the performance comparison of the algorithms. These algorithms are used to real-time aerial images from different cameras, and perform seamless stitching to produce a wider field of view. The new image hence generated can be used for the navigation of other Unmanned Aerial Vehicles. Ongoing work includes development of new strategy for image detection and processing, followed by a proof of concept testing of the techniques studied and developed.

Real-Time Single Image and Video Super-Resolution

For conversion of Low Resolution Images to High Resolution, traditional approaches make use of interpolation to upscale the image in the 1st step, which makes the entire process computationally extensive. This project makes use of an efficient sub-pixel convolutional layer, which is the last layer of the CNN for upscaling the image. Hence, the process becomes computationally fast, and can be used for real-time applications

Molecular Dynamics Simulations for Room Temperature Ionic Liquids
Guide: Dr. Prashant U. Manohar

Laboratory oriented project to simulate acetonitrile in the presence of room-temperature ionic liquids using Amber MD software, and present alternatives to traditional organic solvents. Multiple physical and chemical properties of ionic liquid [bmim][BF4] were analysed in the presence of acetonitrile to obtain their relative stability and the possibility of using RTILs as solvents was studied.

Integrated Reports Management and Decision Support System

Built a system to generate customised reports and make a knowledge base using Information Retrieval technique for making necessary predictions at the Scientific Information and Resource Division (SIRD), IGCAR.

Project Erlebnisse	Built an e-voting application using Ethereum Blockchain protocol and deployed it on Microsoft Azure, as a part of Microsoft Codefundopp. Gained expertise in blockchain, hashing algorithms and other security protocols. Hands-on experience with Solidity, blockchain technology internals, expertise on smart contracts.
Event Management System	Full stack development of a software that allows different college clubs and departments to register their events, and give score to the participants on multiple parameters and promote/demote the teams accordingly. Was used in college fest with a total participation of 2000 participants.

Relevant Courses

Computer Science	Digital Design, Microprocessors and Interfacing, Applied Calculus, Linear Algebra, Probability and Statistics, Differential Equations, , Optimization Techniques, Neural Networks and Fuzzy Logic
Electrical and Electronics	Electrical Machines, Control Systems, Electronic Devices, Microelectronic Circuits, Analog and Digital VLSI Design, Communication Systems, Digital Image Processing, Analog Electronics, Power Electronics, Power Systems
Chemistry	Chemical Thermodynamics, Statistical Thermodynamics, Quantum Chemistry, Group Theory, Nanochemistry, Chemical Experimentation, Chemistry of Materials, Atmospheric Chemistry
MOOCs	Introduction to Algorithms and Analysis, Learning from Data, Introduction to Programming with MATLAB
Others	Technical Report Writing, Cross Cultural Skills

Technical Skills

- Areas of interest: Computer Vision, Deep Learning, Image Processing, Algorithms
- Proficient in: Python, Pandas, PyTorch, NumPy, Amber, C++, SQL, MATLAB, git, Unix
- Familiar With: Verilog, Javascript, Algorithms, Blockchain, LTSpice, Arduino