Dheeraj Khanna
Deep Learning and Robotics enthusiast

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Objective

I am a tech enthusiast and particularly like to work in the field of Deep learning and computer vision. Currently, I am seeking research opportunities in the domain of computer vision.

Skills

General	Leadership, Time Management, Innovative, Determined to Learn
Programming Languages	Python, C++, C, Embedded C
Frameworks/Libraries	NVIDIA DGX,Arduino, Proteus, Folium, OpenCV, AVR Studio, Tensorflow, Keras, Plolty
Hardware	Raspberry Pi 3B, Arduino, Atmega 16, Firebird V Robot, Low-Level Interfacing(Sharp Sensor, White Line Sensor, IR Array, Ultrasonic Sensor, Color Sensor), Position Encoders
Technologies	Embedded Systems, Robotics, Deep Learning, Computer Vision, Data Analytics
Operating Systems	Windows, Linux Ubuntu

Education

BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING| NEW DELHI

2016-2020, B.TECH | ELECTRONICS AND COMMUNICATION ENGINEERING
CGPA- **8.31 (upto 5 semesters)**

DAV PUBLIC SCHOOL, EAST OF KAILASH, NEW DELHI

2016, CBSE BOARD | CLASS XII (PCM)
Aggregate Percentage : **91.8**

2014, CBSE BOARD | CLASS X
CGPA : **10.0**

Research experiences and Trainings

June 2019 – August 2019 | **Research Intern, IIIT-Delhi, New Delhi | Supervisor : Dr. Ganesh Bagler**
- Managed features and statistics designing using matplotlib, plotly and seaborn.
- Programmed curation, integration, and compilation of databases of recipes from different sources.
- Built Deep Learning architectures for the generation of recipes with supervised learning using NLP.

Data Visualization | Computer Vision

December 2018 – March 2019 | **Research Trainee in Deep Learning, CSIR-CENTRAL ELECTRONICS ENGINEERING RESEARCH INSTITUTE, New Delhi | Supervisor : Mr. Manoj Sharma**
- Contributed to building architectures such as DBPN for image denoising.
- Built an android app for plant disease detection using Tflite.
- Built DL architectures for image segmentation and object detection such as RCNN, YOLOv2.
- Executed Deep Learning models for Video super-resolution for NTIRE Challenge 2019 using Tensorflow Framework and NVIDIA DGX GPU Clusters.

Deep Learning | Tensorflow | CNN | Jupyter Notebook

August 2018 – January 2019 | **Vice Chairperson, BVPIEEE-CS, BVCOE, New Delhi**
- Coordinated in Python and Machine Learning workshops held in the College.
- Coordinated various coding events.
- Organized techno-managerial fest "BVEST" , 2018

Head Position | Coordinator

June 2018 – July 2018 | **Summer Trainee in Cyber Security, ICSS India, New Delhi | Supervisor : Mr. Sunil Kumar**
- Learnt Networking between Computers.
- Worked on Kali Linux.
- Learnt various penetration testing tools.

Linux | Information Security | Hacking | Pen Testing

June 2017 – August 2017 | **Summer Trainee in Embedded Systems, Cyborg Labs, New Delhi | Supervisor : Mr. Gursahib Singh**

- Worked on Atmega 16 Micro-controller.
- Worked on Proteus as a Framework for hardware designing.
- Worked on communication protocols such as UART, SPI.

Serial Communication | Atmega 16

Projects and Research work

RecipeDB — 2019

github.com/TriptSharma/RecipeDB
Supervisor : Dr. Ganesh Bagler
RecipeDB is a website of recipes and ingredients from over 22 world regions, intended to enable data-driven explorations of recipes. It facilitates multi-level analysis of traditional recipes (dietary classifications, ingredient composition, nutritional profile, recipes, etc). Developed statistics and visualizations between the relationships and statistics in the database.

Plotly | Python | Data Science | Pandas

Image Denoising and Video Super-resolution — 2019

github.com/dkhanna511/Image-Denoising
Supervisor : Mr. Manoj Sharma
This project includes the implementation of architectures for Super-resolution of images and videos. Developed models for the implementation which include conditional auto-encoders and deep back-projection network. Achieved the PSNR of 36.xx for the image denoising task.

OpenCV | Python | Tensorflow | Neural Network | DBPN

Dehazing underwater and foggy images and videos — 2018-2019

github.com/dkhanna511/Image-and-Video-Dehazing
Supervisor : Ms. Rubeena Vohra
This project includes dehazing of underwater and foggy images and videos using image processing. It uses the concepts of masking and thresholding.

OpenCV | Python | Jupyter Notebook

Escalade — 2018

github.com/dkhanna511/Escalade-mains-autonomous-bot
It consists of two bots- Manual and Automated Bot Manual bot consists of a channel mechanism, a picking mechanism, and a dropping mechanism. Automated bot consists of IR Array, a Color sensor, an Ultrasonic sensor, a holding mechanism and a sharp sensor for Bot traversal and lifting/picking mechanisms.

Sensors | Mechanisms | Arduino

HARVESTER BOT — 2017 - 2018

github.com/dkhanna511/E-Yantra
It includes Digital Image Processing for recognizing different fruits, Line following using White Line Sensors, Obstacle Detection using Sharp Sensors, Servo Motors controlling, Communication between FIREBIRD V robot and Raspberry Pi 3B.

Firebird V | Raspberry Pi | Digital Image Processing | Python | OpenCV

Publications

1. Manoj Sharma, Megh Makwana, Anuj Badhwar, Ajay Pratap Singh, Avinash Upadhyay, Rudrabha Mukhopadhyay, Ankit Shukla, **Dheeraj Khanna**, A. S. Mandal, Santanu Chaudhury, "NTIRE 2019 Challenge on Video Super-Resolution : Methods and Results", Co-author of Team Paper, IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW-2019)

Achievements

1. Scored 11th rank in CVPR's NTIRE Challenge 2019 for Video-Super-resolution
2. Scored All-India 9th rank in e-Yantra Robotics Competition 2017-18 organized by IIT Bombay, sponsored by MHRD.
3. Scored 6th rank in Escalade 7.0 organised by IIT Guwahati.