CURRICULUM VITAE

Deepti Hegde

EDUCATION

Johns Hopkins University *August 2020 - Present*
Ph.D.
Department of Electrical and Computer Engineering

KLE Technological University *August 2016 - Present*
B. Engg.
School of Electronics and Communication Current CGPA: 8.97/10

EXPERIENCE

IIT, Delhi June-July 2018
Summer Intern

· On-campus internship under Dr. Prem Kalra and his PhD students working on the computer vision project "Relocalization of an Agent in 3D SLAM Generated Map", to demonstrate real-time relocalization of an agent by estimation of pose and trajectory of a camera at any given mapped location with memory efficient relocalization algorithm capable of being run on 2GB RAM ARM Cortex A53 processor (Raspberry Pi 3B).

Samsung Research Institute, Bangalore November 2018- May 2019
PRISM Program

· Project collaboration with SRI, Bangalore on embedded computing intelligence and efficient deep learning techniques over the course of two semesters.

IIT, Guwahati June-July 2019
Summer Research Intern

· On-campus internship under Dr. Prabin K Bora in the Image Processing and Computer Vision Lab, IITG. Worked on the underwater enhancement research project "Underwater Image Enhancement Using Adaptive Cubic Spline Interpolation in CIELAB Color Space".

PUBLICATIONS

Single Underwater Image Restoration

***Deepti Hegde**, Chaitra Desai, Ramesh Tabib, Uma Mudenagudi* Oral Presentation - Women in Computer Vision Workshop, ECCV 2020.

Adaptive Cubic Spline Interpolation in CIELAB Color Space for Underwater Image Enhancement

***Deepti Hegde**, Chaitra Desai, Ramesh Tabib, Ujwala Patil, Uma Mudenagudi, Prabin K Bora* Oral Presentation - Best Paper Session, Third International Conference on Computing and Network Communications (CoCoNet 2019), Trivandrum, Kerala

Adaptive Color Correction for Underwater Image Enhancement

***Deepti Hegde**, Chaitra Desai, Ramesh Tabib, Ujwala Patil, Uma Mudenagudi, Prabin K Bora* Extended Abstract, International Conference on Computer Vision Workshops (ICCVW 2019).

Relocalization of Camera in a 3D Map on Memory Restricted Devices

***Deepti Hegde**, Ramesh Tabib, Uma Mudenagudi* 7th National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG 2019)

PROJECTS

Underwater Image Enhancement Using Adaptive Cubic Spline Interpolation in CIELAB Color Space

I worked on an independent research project to perform adaptive estimation of a color correction curve in the CIELAB color space to obtain an image with corrected colors for single image enhancement. Haze and blue-green tint in underwater images were removed through this process and improved performance on object recognition tasks in underwater images was demonstrated. Two page extended abstract paper accepted at RLQ Workshop @ ICCV 2019. (Python)

Low Memory GEMM-Based Convolutions for Deep Neural Networks

I worked in a team of 2 to design and implement a convolution algorithm with reduced memory and computational complexity for inference of CNN models on low memory devices such as mobile phones, using the ARM Compute Library. We demonstrated reduced memory footprint of multi-channel, multiple kernel convolution as compared to standard deep learning library functions. Joint collaboration with Samsung Research Institute Bangalore and KLE Tech. (C++)

ARM NN Offline Graph Generation Study for Deep Neural Networks

ARMNN has various runtime parsers for the various model formats such as Caffe, Tensorflow, ONNX, TFLite etc. To avoid this overhead during runtime, I worked in a team of 5 to parse the models and generate the ARMNN graph offline by developing a graph generator tool which generates ARMNN graphs using an efficient serialization library such as FlatBuffers. We successfully built ARMNN SDK on an x86 machine. Joint collaboration with Samsung Research Institute Bangalore and KLE Tech. (C++)

Real-Time Multiple Person Recognition and Tracking for CCTV Camera

I led a team of 6 to design and develop a surveillance system for CCTV cameras which recognizes selected multiple target individuals and tracks in real time across multiple cameras, with detection, recognition, and kernel-based tracking modules. Facial recognition is done using HOG features and image embedding using OpenFace. We were able to perform simultaneous tracking and recognition of multiple individuals across multiple cameras in real time. Winning project, Smart India Hackathon 2019. (Python)

ACADEMIC ACHIEVEMENTS

First place, Smart India Hackathon, Software Edition, for the project “Real-Time Multiple Person Recognition and Tracking for CCTV Camera” (Team Leader)

Certificate of Excellence, Samsung PRISM Program for contribution to the worklet ”Offline Graph Generation Study for Deep Neural Networks”