



Objective

Seeking a full-time research opportunity in the field of image/video processing, computer vision and/or machine/deep learning.

Education

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|------------------------|--|
| January 2012 - Current | Arizona State University – PhD, Image/Video Processing & Computer Vision |
| December 2008 | University of Southern California – M.S., Electrical Engineering |
| June 2007 | Pune University, India – B.E., Electronics Engineering |

Research

RESEARCH ASSOCIATE, ARIZONA STATE UNIVERSITY - AUGUST 2014 - CURRENT

Currently working on developing an algorithm to measure the perceptual quality of initialized background images used for various applications such as background subtraction, object tracking, video surveillance etc. Also published a benchmarking database to compare the performance of the background reconstruction algorithms and measure the performance of existing image quality analysis techniques for background reconstruction application.

STUDENT RESEARCHER, ARIZONA STATE UNIVERSITY - JANUARY 2017 - JUNE 2017

Working on developing image processing and computer vision techniques to identify different stylistic features in cinema-production such as lighting directions and quality, shot distance, shot angle and depth-of-field in videos for Video Categorization.

RESEARCH ASSOCIATE, ARIZONA STATE UNIVERSITY - JANUARY 2012 - MAY 2013

Worked on creating photo-realistic 3D models of a scene captured by multiple cameras. Image based rendering in OpenGL with texture mapping. Developed an algorithm for robust foreground extraction, occlusion handling and background recovery for images taken from different viewpoints.

RESEARCH ASSOCIATE, ARIZONA STATE UNIVERSITY - SEPTEMBER 2013 - DECEMBER 2013

Worked on implementing a Proof of concept for Structure from Motion algorithm to extract 3D point cloud and reconstruct a 3D scene from multi-view images.

Experience

RESEARCH AND DEVELOPMENT INTERN, SHARP LABORATORIES OF AMERICA – AUGUST 2016 - OCTOBER 2016

Worked on researching and prototyping pedestrian detection algorithms for surveillance using synthesized data for training.

SOFTWARE ENGINEERING INTERN, INTERNET OF THINGS SOLUTIONS GROUP, INTEL CORPORATION – JAN 2014 - MAY 2014

Developing a real time solution for Driver Awareness System (3D depth estimation, object detection, lane deviation warning and spherical stitching for 360 degree panoramic view of the surrounding) using multiple cameras mounted on a car. Also working on accelerating the solution on Intel HD Graphics using OpenCL.

SOFTWARE ENGINEERING INTERN, VISUAL & PARALLEL COMPUTING GROUP, INTEL CORPORATION – MAY 2013 - AUGUST 2013

Was part of a team that worked on Proof-of-Concept augmented reality application to showcase Intel HD graphics capabilities. Accelerated graphics operations using OpenCL and optimized code flow for acquiring data from sensors, processing data to get depth maps and rendering 3D scene.

GRAPHICS ENGINEER, DIGITAL HOME GROUP, INTEL CORPORATION – FEBRUARY 2009 - NOVEMBER 2011

Architected the validation efforts for the video subsystem. Lead the effort for testing the video quality of Video Post Processor IP supported features such as de-interlacing, scaling, noise reduction, contrast enhancement, color correction, sharpness etc. Carried out HQV benchmarking for the CE devices.

SOFTWARE VALIDATION INTERN, DIGITAL HOME GROUP, INTEL CORPORATION – JUNE 2008 - DECEMBER 2008

Validated software drivers for video components in a streaming media SoC. Prepared test plans, developed and automated tests.

Skills

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|-------------------|--|
| Libraries | OpenCV, OpenGL, TensorFlow, OpenCL |
| Tools | XCode, Matlab, Visual Studio, Eclipse, Blender |
| Languages | C, C++, Python, Bash |
| Operating Systems | Linux, Mac OSX, Windows |

Publications

Aditee Shrotre and Lina J. Karam, "Background recovery from multiple images," In Proc. of IEEE Digital Signal Processing and Signal Processing Education Meeting (DSP/SPE), pp. 135-140, August 2013.

Aditee Shrotre and Lina J. Karam, "Visual quality assessment of reconstructed background images," In Eighth International Conference on Quality of Multimedia Experience (QoMEX), pp. 1-6, June 2016.

Aditee Shrotre and Lina J. Karam, "Full Reference Objective Quality Assessment for Reconstructed Background Images," submitted to IEEE Transactions in Image Processing.

Projects

VIDEO QUALITY ASSESSMENT USING SPATIO-TEMPORAL VSSIM INDEX - C/OPENCV

SPRING 2011

Performed a comparative study of Spatio-Temporal VSSIM Index a non-reference video quality metric¹ with other existing Video Quality Metrics such as VQM, VSNR, traditional VSSIM and MOVIE.

FRAME RATE CONVERSION - C/CODE COMPOSER STUDIO

SPRING 2008

Converting the frame rate from 15 fps to 30 fps real time. The project is on parallel lines as required for HDTVs. Working on DSP starter kit (DSK) with the TMS320C6416 fixed point processor onboard and complete support for input and output.

CAR LICENSE PLATE RECOGNITION USING MORPHOLOGICAL OPERATIONS - C/WINDOWS

FALL 2007

Extraction of license plate information using the morphological operations and edge detection algorithms for a car image. The algorithms worked on both grey and color images.

OPTICAL CHARACTER RECOGNITION - C/WINDOWS

FALL 2007

Recognizing the characters including alphabets and numbers in the test data given the training data.

¹ Anush K. Moorthy, Alan C. Bovik, "Efficient Motion Weighted Spatio-Temporal Video SSIM Index", SPIE Conference on Human Vision and Electronic Imaging, San Jose, California, January 17-21, 2010.