

Sneha Bhakare

MS STUDENT · SCHOOL OF COMPUTING · UNIVERSITY OF UTAH

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Education

University of Utah

August '19 - Present

M.S. IN COMPUTING (THESIS TRACK)

- Relevant Courses: Ray Tracing for Graphics, Virtual Reality, Computer-Aided Geometric Design

Indian Institute of Technology Bombay

July '15 - May '19

B.TECH. IN COMPUTER SCIENCE AND ENGINEERING WITH HONOURS

- Relevant Courses: Computer Graphics, Advanced Computer Graphics, Medical Image Computing, Digital Image Processing

Research

Coherent Rendering for Augmented Reality

Undergraduate Thesis, IIT Bombay

- Estimated the spherical harmonics lighting for a scene with a known arbitrary object (used as lightprobe) using a single CNN
- Trained the CNN on a synthesized training dataset of known arbitrary object with systematic variation of illumination
- Investigated combinations of planes from the environment to use them effectively as a plausible lightprobe

Interactive Decision-making in VR Environments

Virtual Reality

- Investigating the relationship between way of information presentation (active space vs personal space) and decision-making performance within an interactive 3D Virtual Reality environment

Professional Experience

Automaton

Morgan Stanley

- Built an E2E testing framework for an Angular application using Protractor to ease testing and aid debugging
- Developed functionalities to perform automated routines and validate xmlhttprequests in a sandbox environment

Order Trade Analytic Platform

Edelweiss Finance and Investment Limited

- Developed application for Breach Report generation for 4 Order Trade Analytic platforms and optimized it at design and implementation level to improve its time performance by 70% using parallel programming and memory mapping

Research Implementations

Unsupervised Learning for Archetypal Style Analysis

Advanced Machine Learning

- Derived 32 archetypal styles from 2046 artworks, implemented style transfer and experimented with the quality of stylization

Content Based Image Retrieval

Digital Image Processing

- Built descriptor for image retrieval by extracting orientation features at salient Modified Harris for Edges and Corners keypoints using an improved edge map and tested this method on the THUR15000 and COREL10000 databases

Key Projects

Ray Tracer

Ray Tracing for Graphics

- Built a ray tracer to shade reflective, refractive, glossy surfaces with area lights to simulate soft shadows
- Implemented texture filtering, anti-aliasing, depth of field rendering and BVH acceleration structure to improve performance

Game in Augmented Reality

Advanced Computer Graphics

- Developed a ball in a maze puzzle game controlled by tilting the marker board in AR using ARToolkit 5 and Box2D

3D Graphical Modelling and Animation

Computer Graphics

- Built hierarchical models of 3D characters, added lighting, texture and scripted animation to create a short animation video
- Implemented an interface to create and edit Bezier space curves by clicking control points for camera animation

Responsibilities

Teaching Assistant

- Computer Graphics by Prof. Ladislav Kavan, University of Utah
- Computer Programming by Prof. Ganesh Ramakrishnan, IIT Bombay
- Computer Programming by Prof. Om Damani, IIT Bombay

Fall 2019
Spring 2018
Autumn 2018