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
- Conferred with Desai Sethi Scholarship rewarded to the Top 5 ranked girls in JEE Advanced

Research

Coherent Rendering for Augmented Reality *Undergraduate Thesis, IIT Bombay*

GUIDE: PROF. PARAG CHAUDHURI *July '18 - May '19*
- 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

Unsupervised Learning for Archetypal Style Analysis *Advanced Machine Learning*

GUIDE: PROF. SUNITA SARAWAGI *Spring 2019*
- Derived 32 archetypal styles from 2046 artworks, implemented style transfer and experimented with the quality of stylization

Content Based Image Retrieval *Digital Image Processing*

GUIDE: PROF. SUYASH AWATE *Autumn 2018*
- 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

Progressive Neural Nets *Reinforcement Learning*

GUIDE: PROF. SHIVARAM KALYANAKRISHNAN *Autumn 2018*
- Investigated knowledge transfer via multitask learning between 2 tasks by adding lateral connections to the A3C framework

Experience

Automaton *Morgan Stanley*

GUIDE: MR. PRAVIN PATIL *Summer 2018*
- 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

Monte Carlo Path Tracing Renderer *Web and Coding Club, IIT Bombay*

GUIDE: MR. KUMAR AYUSH *Summer 2018*
- Implemented a ray tracer to shade reflective, refractive objects like sphere, cone and cylinder with point light sources
- Built Monte Carlo path tracing system to achieve effects like soft shadows and color bleeding

Platform Scope Validation & Config Parameter Audit *Edelweiss Finance and Investment Limited*

GUIDE: MR. VINAY ISRANI *Winter 2017*
- Developed Java application to automate validation process of trade orders, configuration files and generation of analysis report on a daily basis using validation algorithms designed by the functional team

Order Trade Analytic Platform *Edelweiss Finance and Investment Limited*

GUIDE: MR. ANAND MOHAN *Summer 2017*
- 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

Course Projects

Game in Augumented Reality
Advanced Computer Graphics

GUIDE: PROF. PARAG CHAUDHURI
Spring 2019

- 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

GUIDE: PROF. PARAG CHAUDHURI
Autumn 2018

- 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

Flappy Bird AI
Machine Learning

GUIDE: PROF. AMIT SETHI
Spring 2018

- Trained an environment agnostic bot using Q-learning and Deep Q-Network with ε-greedy and experience replay strategies

Intelligent Pacman Agent
Artificial Intelligence

GUIDE: PROF. SHIVARAM KALYANAKRISHNAN
Spring 2018

- Developed search agents in Pacman using A* search for finding treats, used Expectimax and Minimax algorithms with alpha-beta pruning for hunting ghosts; used Particle Filters and Belief networks to infer ghost positions from noisy estimates

Compiler for Subset of C
Programming Languages

PROF. UDAY KHEDKAR
Spring 2018

- Developed a compiler for a C-like language in python, which supported if-else statements, loops, arithmetic expressions, recursive function calls and generated abstract syntax trees, control flow graphs, symbol tables, assembly code

FoodEx App
Database

GUIDE: PROF. S.SUDARSHAN
Autumn 2017

- Developed a food delivery android app for students and food hub owners using JDBC API and PostgreSQL database

Chat Simulator
Computer Networks

GUIDE: PROF. VARSHA APTE
Spring 2017

- Developed a client-server based multi-threaded chat application using socket programming in C & posix threads

Achievements

2015	Secured All India Girls Rank **3** and All India Rank **115** in JEE Advanced out of **150,000** candidates
2015	Scored **99.9** percentile in JEE Main B.Tech out of **1.3** million candidates
2011	Received the prestigious **NTSE** (National Talent Search Examination) Scholarship conducted by NCERT

Skills

Programming	C++, C#, C, Python, Java, Bash, LaTeX, Protractor
Libraries	PyTorch, OpenGL, MATLAB, VHDL

Responsibilities

Teaching Assistant

- Computer Graphics by Prof. Ladislav Kavan, University of Utah — Fall 2019
- Computer Programming by Prof. Ganesh Ramakrishnan, IIT Bombay — Spring 2018
- Computer Programming by Prof. Om Damani, IIT Bombay — Autumn 2018

Extra-curricular Activities

Social   Organised fine arts learning and fun activities for under privileged kids at Aman Day Care Centre
Participated in Morgan Stanley Global Volunteers' Month to raise funds for Helen Keller International by decorating handbags with warli painting

Cultural   Led the **winning** photography and design team representing IITB at Inter IIT Culturals
Bagged **3rd** position in Freshiezza Cup Painting Competition among 50 freshmen
Bagged **special mention** in video making and editing in Freshiezza Music Video Competition
Exhibited my artworks in Kaladarshan the annual exhibition of Photography and Fine Arts