Snehal Padhye
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https://snehalpadhye.github.io

EDUCATION

Doctor of Philosophy, Imaging Science
Rochester Institute of Technology, Rochester, NY
August 2018 - Present
CGPA: 3.69/4

Master of Technology, Signal Processing
College of Engineering Pune, India
August 2013 - May 2015
CGPA: 9.13/10

Bachelor of Technology, Electronics and Communication
Ramdeobaba College of Engineering and Management, Nagpur, India
May 2009 - July 2013
CGPA: 73.02%

EXPERIENCE

Research Intern 17 May - 3 Sept 2021
AR Display Engineering Team, Facebook Reality Labs
Worked on simulating AR pipeline for evaluating its perceptual impact and image quality.

Research Assistant Fall 2019 - Present
Working in Visual Imaging and Technology Lab with Dr. James Ferwerda in developing techniques for surface and material capture and visualization of cultural heritage objects for realistic digitization.

Teaching Assistant

- Computer Resource Pool Spring 2019
  Responsible for solving programming queries in the department.
- Imaging Science Fundamentals Fall 2018
  Responsible for conducting and grading labs.

System Engineer June 2015 - July 2018
Engineering and Industrial Services unit, Tata Consultancy Services, Pune, India

- Led Scripting functionality of Monitoring and Control (M&C) System for Giant Metrewave Radio Telescope (GMRT) which is a precursor for Square Kilometer Array (SKA).
- Redesigned an existing unstable scripting engine that automated operation and data collection from the telescope array. The implementation increased requirement coverage from 20% to 100%.
- Started an initiative to apply machine learning in automation of data capture and processing and in health and fault analysis of large experimental setup such as GMRT.

COURSES COMPLETED

Image Processing and Computer Vision, Radiometry, The Human Visual System, Optics for Imaging, Foundation of Computer Graphics, Global Illumination

SKILLS

Working Knowledge: Python, MATLAB, JavaScript, HTML
Basic Knowledge: C++, C, GLSL/HLSL, TensorFlow, Java, C#

PUBLICATIONS & TALKS

- Paper titled 'Real-time illumination capture and realistic rendering on mobile devices' accepted for Frameless-21.
- Abstract titled 'Visual perception of surface properties through direct manipulation published for VSS-2021 (Vision Science Society). Recipient of Elsevier/Vision Research Virtual Travel Award for 2021.
- Paper titled 'Visual Perception of Surface Properties Through Manipulation' published in 29th Color and Imaging Conference.
- Paper titled 'A Practitioner's guide to Fringe Projection Profilometry' published in Archiving-21.
- Course titled ' Measuring, modeling and rendering surface appearance' offered in Archiving-21 with Dr. James Ferwerda.
- Paper titled 'A Web-based Visualization Tool for Multispectral Images' published in Electronic Imaging - 2021.
- Abstract titled 'A simple web-based tool for multi-spectral and topographical visualization' published in SPIE Defence + Commercial Sensing - 2021.
- Presented 'Measuring, Modeling, and Visualizing Surface Appearance' with Dr. James Ferwerda in IS&T Color & Imaging Conference Webinar 2020.
- Abstract titled 'Digital Modeling Of Cultural Heritage Objects' published in Frameless Journal 2019.

PROJECTS

Realistic Digital Modeling & Visualization of cultural heritage objects — Python, MATLAB, C#
Working on developing a system capable of capturing surface topography along with the material properties to construct a realistic digital model of planar cultural heritage objects such as paintings and manuscript.

Tools for Multispectral Visualization — Three.js, Python
Working on developing Web-based tools for simultaneous visualization and analysis of mutispectral and multimodal data.

Visual perception of surface properties through direct manipulation — Three.js, HTML, Python
Developing a series of psychophysical experiments to understand how the dynamic visual patterns are coded to provide information to perceive changes in shape or material of the object.

Lightweight & real time capturing & rendering scene illumination — JavaScript, HTML, Python
Developed an application to capture user's real time illumination environment and use it to render an object in the virtual scene on mobile devices. The effect of change in illumination in user's environment is reflected in the virtual scene.

OCR on curved surfaces — Python, Tensorflow
Worked on applying deep learning to recognize text from randomly curved surfaces. The motivation is to use it as an application to aid shoppers in automatic nutrition and price comparison of products.