Janmesh Ukey

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EDUCATION

Master of Science, Computer Science Aug 2022 – May 2024
University of Utah *Salt Lake City, UT*
GPA: 3.95/4.0

Bachelor of Technology, Engineering Physics Aug 2015 – May 2019
Indian Institute of Technology, Roorkee *Roorkee, India*

SKILLS

Programming:	Python	C++	C#	Javascript
Packages:	PyTorch	OpenCV	TensorFlow	
Software:	Unity	Blender	Matlab	

EXPERIENCE

Graduate Research Assistant Aug 2022 - Present
Scientific Computing and Imaging Institute, University of Utah

- Designed a network architecture for Multi-Organ Statistical Shape Modelling directly from 3D Medical Images.
- Conducted a study on self-supervised segmentation methods and their usefulness in Statistical Shape Modelling.
- Designed a deep learning framework for automatic Anatomy Localization and Statistical Shape Modelling directly from 3D Medical Images (Published in MIDL 2023).

Machine Learning Engineer Oct 2021 – Aug 2022
AICOE, Reliance Jio

- Developed an iterative optimization-based approach for 3D body shape and pose estimation from Multi-View RGB setup. Extending the same with silhouette loss using differential rendering for a more accurate body shape.
- Evaluated character scene interaction models; trained the network to performs basic human motion based on input control signals. Extended the same to additional actions for opening/closing the door.
- Contributed to the creation of a blender-based module to simulate the 3D environment for synthetic data generation.

Research Assistant Jun 2020 – Jan 2022
Multimodal Perception Lab, IIIT Bangalore

- Constructed an image to image translation model based on pix2pixHD, using Pose Heatmap as intermediate pose representation for sign transfer (pose) between different subjects.
- Proposed a method to improve the hand outputs by using a separate generator for hand, taking into account motion continuity between consecutive frames along with a refinement network for better structure.
- Proposed a method for pose normalisation, and motion graph for continuity between different individual signs for smooth transitions.

Computer Vision Engineer Jun 2019 – Sep 2021
AjnaLens by DimensionNXG

- Developed a cross-platform software development kit for the AjnaLens Headset, worked on software correction for optic lens in AjnaLens and SLAM integration.
- Collaborated with the team on mesh-based reconstruction module from depth data for Spatial Mapping.
- Implemented coloured point cloud generation from RGBD data to be used for 6D object pose estimation.
- Contributed to Spatial Understanding module, use of RGB based indoor scene segmentation to annotate various mesh planes on the reconstructed mesh.

Student Assistant Summer 2018
Inter-University Centre for Astronomy and Astrophysics, Pune

- ASTROSAT/UVIT Grating Spectroscopy for HZ4(White Dwarf) and NGC-40 Planetary Nebula.
- Formulated a calibration model from UVIT (Ultra Violet Imaging Telescope) Satellite Image data for calculating effective area for Flux Calibration.

PUBLICATIONS

- J. Ukey and S. Elhabian. Localization-aware deep learning framework for statistical shape modeling directly from images. In Medical Imaging with Deep Learning, 2023
- Krishna S*, Janmesh U*, Jayagopi D. "GAN Based Indian Sign Language Synthesis",12th Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP), Jodhpur, India, December 2021. (* Equal Contribution)
- J. S. K. Patibandla, S. K. Adhikary and J. Ukey, "Augmented Reality for Assistive Maintenance and Real-Time Failure Analysis in Industries," 2020 2nd International Conference on Innovative Mechanisms for Industry Applications (ICIMIA), Bangalore, India, 2020, pp. 149 - 153.

ACTIVITIES AND AWARDS

- Conducted an industrial expert lecture on Rendering in VR/AR and creating industrial AR/VR applications organized by All India Council for Technical Education at Indian Institute of Technology, Patna, 2019.
- Worked at National Service Scheme, Right to Education cell, IIT Roorkee, during which free tuition and guidance was provided to children in nearby villages, 2015 - 2016.

PROJECTS

High Performance Computing *Jan 2019 - April 2019*

guided by - Prof. Arumugam Paramasivan, Associate Professor, IIT Roorkee

- **Aim** - Explore how parallel computation can help in solving complex physics problems.
- Designed an algorithm and computer code, based on Nilsson Model, to calculate single energies of a particle as a function of deformation.
- Used OpenMPI and python parallelisation modules to explore various ways of computing in parallel and decrease the computational time of the complex Nilsson Model problem.
- Investigated the performance of different parallel algorithms for Nilsson Model problem on different machines (Intel Xeon 64 cores, Intel i9 8 cores and Intel i5 4 cores).

Geant4 BC501A Neutron Scintillator Stimulation *Summer 2017*

guided by - Prof. Anil Kumar Gourishetty, Associate Professor, IIT Roorkee

- **Aim** - Modelling of BC501A Neutron Scintillator using Geant4.
- Performed simulation for various fluxes of high energy neutrons in a cylinder of diameter 6 cm and height 6 cm filled with BC501A liquid for final results and water for trial and calculated neutron energy distribution from measured responses.
- The neutron energy distribution calculated was checked to be in sync with the experimental results.