Tejas Anvekar

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I'm a Research Assistant at CoE in Visual Intelligence (**CEVI**) | KLE Technological University advised by Dr. Uma Mudenagudi. My ongoing research is dedicated to the acquisition and representation of three-dimensional (3D) data, situated at the nexus of 3D geometry, continual learning, and human perception. My unwavering commitment lies in augmenting the perceptual prowess of robotic systems, with the ultimate aim of harmonizing their functionality with the intricate cognitive framework characteristic of human perception.

Experience

Jul 2022 – Present
Research Assistant, CEVI | KLE Technological University
Under the guidance of Dr. Uma Mudenagudi, I work with my team @ CEVI to build Human-Perception aware Deep Learning Models for 3D Geometry.

Aug 2022 – Dec 2022
Consultant, Project Vision | EiNETCORP
We provide aid to the blind, by providing audio descriptions of images or video content, or by helping to navigate unfamiliar environments through the use of auditory or haptic feedback using AI Models.

Publications

ORALS Dec 2023
Novel Class Discovery for Representation of Real-World Heritage Data as Neural Radiance Fields, **Student-Abstract | AAAI-2024**
Shivanand Kundargi, Tejas Anvekar, Ramesh Ashok Tabib, Uma Mudenagudi

POSTER March 2023
A Benchmark Grocery Dataset of Realworld Point Clouds from Single View , **main-track | IEEE 3DV 2024**
Shivanand Sheshappanavar, Tejas Anvekar, Shivanand Kundargi, Yufan Wang, Chandra Kambhamettu

Spotlight Oct 2023
ASUR3D: Arbitrary Scale Upsampling and Refinement of 3D Point Clouds using Local Occupancy Fields, **e-heritage | ICCVW 2023**
Akash Kumbar, Tejas Anvekar, Ramesh Ashok Tabib, Uma Mudenagudi

Spotlight Oct 2023
DeFi: Detection and Filling of Holes in Point Clouds Towards Restoration of Digitized Cultural Heritage Models, **e-heritage | ICCVW 2023**
Ramesh Ashok Tabib , Dikshit Hegde, Tejas Anvekar, Uma Mudenagudi

POSTER Oct 2023
TP-NoDe: Topology-aware Progressive Noising and Denoising of Point Clouds towards Upsampling, **WiCV | ICCVW 2023**
Akash Kumbar*, Tejas Anvekar*, Tulasi Amitha Vikrama, Ramesh Ashok Tabib, Uma Mudenagudi

ORALS Jun 2023
GPr-Net: Geometric Prototypical Network for Point Cloud Few-Shot Learning, **DLGC | CVPRW 2023**
Tejas Anvekar, Dena Bazazian

PRE-PRINT Jun 2023
PointCLIMB: An Exemplar-Free Point Cloud Class Incremental Benchmark, **CLVision | CVPRW 2023**
Shivanand Kundargi*, Tejas Anvekar*, Ramesh Ashok Tabib, Uma Mudenagudi

POSTER Jun 2023
IPD-Net: SO(3) Invariant Primitive Decompositional Network for 3D Point Clouds, **StruCo3D | CVPRW 2023**
Ramesh Ashok Tabib , Niteesh Upasi, Tejas Anvekar, Dikshit Hegde, Uma Mudenagudi

CHALLENGE Jan 2023
ApX, **MaCVi | WACVW 2023**
Shivanand Kundargi*, Tejas Anvekar*, Ramesh Ashok Tabib, Chaitra Desai, Uma Mudenagudi

POSTER Dec 2022
Metric KNN is All You Need, **SIGGRAPH ASIA 2022**
Tejas Anvekar, Ramesh Ashok Tabib, Dikshit Hegde, Uma Mudenagudi

SPOTLIGHT
Jun 2022

VG-VAE: A Venatus Geometry Point-Cloud Variational Auto-Encoder, **DLGC | CVPRW 2022**
Tejas Anvekar, Ramesh Ashok Tabib, Dikshit Hegde, Uma Mudenagudi

ORAL
Jun 2022

DA-AE: Disparity-Alleviation Auto-Encoder Towards Categorization of Heritage Images for Aggrandized 3D Reconstruction, **IMW | CVPRW 2022**
Dikshit Hegde, Tejas Anvekar, Ramesh Ashok Tabib, Uma Mudenagudi

POSTER
Jun 2022

LoPo-AE: A Lorentzian-Poincaré Auto-Encoder for Swotting Representations of Data Towards Deep Clustering, **WiCV | CVPRW 2022**
Tejas Anvekar, Ramesh Ashok Tabib, Dikshit Hegde, Uma Mudenagudi

Education

Aug 2018
Jun 2022

Bachelor of Engineering (B. E.) @ School of **Electronics and Communication Engineering** | KLE Technological University
CGPA: 9.17 / 10, Machine Learning, Computer Vision, Deep Learning.

Jun 2016
Mar 2018

Pre-Education University | St. Paul's PU Science College
Physics: 100/100, Maths: 97/100, Chemistry: 95/100.

Internship

Jan 2022
Jun 2022

Research Intern, CEVI | KLE Technological University
Under the guidance of Dr. Uma Mudenagudi and Mr. Ramesh Ashok Tabib, I worked on Self Supervised Representation of Point Clouds. The knowledge I gained, encouraged me to write VG-VAE @ DLGC | CVPR 2022.

Aug 2021
Dec 2021

Junior Data Scientist, Equilibrium | Vayu-Tech
Under the guidance of Harsh Holalad, I worked on Data Cleaning, Analysis, and Feature extraction to categorize EQ Biomechanics, for Equine Walk / Trot Analysis using Machine Learning.

Projects

CEVI

Point Idiosyncrasy: A Point Cloud Quality Assessment Tool
I was privileged to work on "*Shape Representation, Reconstruction, and Rendering of 3D Models*", a Research Promotion Scheme supported by the All India Council for Technical Education (AICTE). Towards shape representation of the point cloud, Metric-KNN and VG-VAE were used to build a no-reference quality metric and a tool to visualize point-cloud features and quality.

CEVI

Curation of Crowd Sourced Data for 3D Reconstruction towards Heritage Preservation
During my undergraduate program, I worked under the guidance of Dr. Uma Mudenagudi, where I contributed to the pipeline for crowd-sourcing images of Indian Heritage Sites to extract 3D Point Clouds using photogrammetry. The pipeline required Curation, and Categorize of Data into Unique Clusters of Heritage sites to avoid Topological Noise and Occlusion in the rendered output mesh. I was fortunate enough to contribute to the pipeline with DA-AE and LoPo-AE for the unsupervised categorization of images.

SEED

Image Idiosyncrasy: A Image Quality Assessment Tool
Our team developed a tool to visually monitor the quality of captured images based on no-reference and neural quality metrics to facilitate the process of Data Quality Check and Cleaning @ SEED (Student Engineered Data by Samsung Institute for Research & Development Bengaluru).

SEED

AnnotateMe: A Semi-automated Image Annotation Tool
We developed a tool for SEED for Image Annotation akin to "labelme". Unlike previous Annotation tools, our tool was able to eliminate the subpixel level annotation and omit the output annotation in JSON / txt along with mask image format.

Achievements

Jan 2023 **A.12th Rank**, 1st Workshop on Maritime Computer Vision | WACV

Dec 2016, 2018 **Best Student Award**, St. Pauls Residential School & PU science college

Jan 2011 **Qualifier**, IAIS Mathematics, UNSW Global

Courses and Certificates

SUMMER SCHOOL
May 2023

3D Vision Summer School (3DVSS), CVIT | IIITH
Understanding, interpreting, and implementing 3D processing and 3D vision techniques such SMPL, Graph Diffussion, NeRF, and Shape Correspondence.

SUMMER SCHOOL
May 2022

3D Vision Summer School (3DVSS), CVIT | IIITH
Understanding, interpreting, and implementing 3D processing and 3D vision techniques such as Farthest Point Sampling, K-Nearest Neighbor, PointNet, and Dynamic Graph Convolution Neural Network for Point Clouds.

COURSE
Dec 2021

Research Experience for Undergraduate (REU), CEVI | KLE Technological University
Course outcomes include the ability to conduct a literature survey, identify research gaps, brainstorm ideas to address those gaps, technical writing, and presentation.

COURSE
July 2020

Open Source Software Development, Linux and Git, The Linux Foundation
Course outcomes: Understanding and implementation of Linux, use of the git command to manage resources and contributions (codes).

COURSE
Jun 2020

Deep Learning Specialization, DeepLearnig.AI
Understanding, interpreting, and implementing Deep Learning and Computer Vision techniques such as VGG, ResNet, MaskRCNN, AutoEncoders, GANs, and Transformers.

COURSE
Jun 2020

Mathematics for Machine Learning Specialization, Imperial College London
The ability to grasp, analyze, and visualize mathematical concepts such as Eigen values, Eigen vectors, PCA, and vector fields are a few of the course objectives.

COURSE
Jun 2020

Machine Learning Specialization, University of Washington
The case study approach of the course helped me to comprehend, analyze, and implement Machine Learning methods such as Linear Regression, Logistic Regression, Clustering, ISOMAPs, and Local Linear Embedding.

Soft Skills

Python | PyTorch | Docker | Blender3D | Technical Writing | Presentation

Capacity Building

Jun 2023,2022, 2021, 2020

Summer-School on Visual Intelligence, CEVI | KLE Technological University
Conducted Hands-on sessions on Interactive Visualization of Machine and Deep-Learning.

Sep 2020

Deep Learning using Python (Workshop), KLE Technological University
Conducted Hands-on sessions on Advanced Python using OOPs, Numpy, Scikit-learn etc.

References

Dr. Uma Mudenagudi, CEVI | KLE Technological University
Dean of Research and Development and Professor School of Electronics and Communication
uma@kletech.ac.in +91 934-339-2667

Dr. Dena Bazazian, University of Plymouth
Lecturer in Robotics and Machine Vision
dena.bazazian@plymouth.ac.uk

Dr. Shivanand V S, GIRL | University of Wyoming
Assistant Professor Department of Electrical Engineering and Computer Science (EECS)
ssheshap@uwyo.edu

I solemnly confirm all the information provided above is true to the best of my knowledge and belief.