Pratheba Selvaraju — pratheba@gmail.com — Germany & USA

Education

University Of Massachusetts, Amherst,(Ph.D. - CS) *Jan 2018 - Dec 2024*
Columbia University, NewYork, (M.S., CS) *Sep 2011 - Dec 2012*

Publications

Conference

- BuildingNet:Learning to Label 3D Buildings: **Pratheba Selvaraju**, Mohamed Nabail, Evangelos Kalogerakis, Siddhartha Chaudhuri.**(ICCV Oral -2021)**
- Developable Approximation of Neural Implicits via Rank Minimization: **Pratheba Selvaraju**. **(International conference on 3D Vision (3DV-2024))** .
- OFER: Occluded Face Expression Reconstruction: **Pratheba Selvaraju**, Victoria Fernandez Abrevaya, Timo Bolkart, Rick Akkerman, Tianyu Ding, Faezeh Amzadi, Ilya Zharkov. **(CVPR - 2025)**
- FORA: Fast-Forward Caching in Diffusion Transformer Acceleration: **Pratheba Selvaraju**, Tianyu Ding, Tianyi Chen, Ilya Zharkov, Luming Liang.
  (arXiv, Towards conference submission)

Journal

- A 3D digitisation workflow for architecture-specific annotation of built heritage: Marissia Deligiorgi, Maria I Maslioukova, Melinos Averkiou, Andreas C Andreou, **Pratheba Selvaraju**, Evangelos Kalogerakis, Gustavo Patow, Yiorgos Chrysanthou, George Artopoulos .**(JASREC -2021)**

Research Experience

MPI - Perceived Systems, Tübingen, Germany (Research Assistant) *Feb 2025 – current*
Active Projects

- Shape deformation and stylization [Continuation of Roblox internship project]: Garment adaptation from a human to non-humanoid avatars constituting topological change of garment and preserving the style and fit elements of it.
- Multimodal video 3D face reconstruction: Extending OFER to video and audio based 3D face reconstruction.
- LLM and VLM based garment pattern generation from images: Creating higher level language domain specific language for garment pattern generation.

Roblox Corporation, San Mateo, CA (Research Intern) *June 2024 – Dec 2024*

- Shape deformation and stylization: Deforming and adapting a garment from a human to non-humanoid characters.

Microsoft - Applied Science Group, Redmond, WA (Research Intern) *Sep 2022 – Dec 2022*

- OFER: Occluded Face Expression Reconstruction, a diffusion based generative model incorporating ranking mechanism to select optimal samples
- FORA: Fast-Forward caching in Diffusion Transformer Acceleration, a faster sampling mechanism for diffusion based transformer network

Google, Redmond, WA (Applied Research Intern) *Jun 2022 - Aug 2022*

- Worked on LiDAR building semantic labelling of parts and reconstruction
- Conducted experiments on real google street view lidar data to extract window positions to be used for training for part label segmentation
- Experiments to reconstruct the open surfaces (buildings)

Facebook Reality Labs, Redmond, WA (Research Intern) *May 2020 - Sep 2020*

- Worked on virtual panel placement in synthetic room view in augmented reality setup
- Conducted experiments for better placement of the panel with respect to head positions dealing with occlusions and scale of the panel

Engineering Experience

IMO, USA (Software Engineer) *Mar 2017 – Dec 2017*
Audio quality improvement of the IMO application by suppression of voice interruption and echo.

Machine Zone, USA (Software Engineer) *Sep 2016 – Jan 2017*
Art tool development for production of game assets using shader programming and 3D graphics

Microsoft, USA (Software Engineer) *Apr 2013 – Aug 2016*
Full stack developer in Skype for business

Technical Skills

Python, C++, Pytorch, OpenGL, node4j, Blender

3D Computer Vision, 3D Computer Graphics, 3D reconstruction, Dataset Generation, Diffusion Generative modeling, Implicit reconstruction, Fast transformer, Geometry Processing, Knowledge Graph, Dataset creation

Courses

Coursera

- Generative AI with Large Language Models (LLMs).

Udemy

- NeRF

Portfolio

CV-Personal Webpage(pratheba.github.io)
LinkedIn(prathebaselvaraju)

Referees

Erik Learned-Miller,(University of Massachusetts, Amherst)
Email: elm@cs.umass.edu

Victoria Fernandez Abrevaya, (Max Planck Institute for Intelligent Systems: Perceived Systems)
Email: victoria.abrevaya@tuebingen.mpg.de

Luming Liang, (Microsoft Research)
Email: llmpass@gmail.com

Tianyu Ding, (Microsoft Research)
Email: tianyuding@microsoft.com