CHANDRADEEP POKHARIYA

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SUMMARY

I am currently a Senior Project Scientist under the guidance of Dr. Rahul Narain at IIT Delhi, focusing on Differentiable Cloth Simulation. I previously earned my M.S. (Research) degree at IIIT Hyderabad, where I was advised by Dr. Avinash Sharma at the CVIT Lab and Dr. Srinath Sridhar at the Brown Visual Computing Lab.

My research experience spans diverse areas, including neural fields, hand-object grasp capture, textured cloth and human body reconstruction, neural surface parameterization, and physics simulation. I am grateful that some of these research projects have also been converted to publications in peer-reviewed conferences and journals.

At present, my primary research interests revolve around physics-based simulation and hand-object manipulation.

EDUCATION

MS by Research in Computer Science and Engineering (CGPA 9.5/10.0) January 2022 - July 2024
International Institute of Information Technology, Hyderabad, India.
(Courses Taken: - Topics in Applied Optimization - Topics in Deep Learning - Statistical Methods in AI - Advanced Graphics & AR/VR - Computer Vision)

RESEARCH PUBLICATIONS

Manas Chaudhary, **C Pokhariya**, A P Rathore, A Chakraborty, R Narain *Towards Generalized Position-Based Dynamics, Under Evaluation*

C Pokhariya, I Shah*, A Xing*, Z Li, K Chen, A Sharma, S Sridhar *MANUS: Markerless Hand-Object Grasp Capture using Articulated 3D Gaussians, CVPR'24*

C Lu*, P Zhou*, A Xing*, **C Pokhariya**, A Dey, I Shah, R Mavidipalli, D Hu, A Comport, K Chen, S Sridhar *DiVA-360: The Dynamic Visuo-Audio Dataset for Immersive Neural Fields, CVPR'24 Highlight*

C Pokhariya*, S Naik*, A Srivastava, A Sharma *Discretization-Agnostic Deep Self-Supervised 3D Surface Parameterization*, *accepted at SIGGRAPH-Asia'22, Technical Communications*

A Srivastava, **C Pokhariya**, SS Jinka, A Sharma *xCloth: Extracting Template-free Textured 3D Clothes from a Monocular Image*, *accepted at ACM Multimedia'22*

SS Jinka, A Srivastava, **C Pokhariya**, A Sharma, PJ Narayanan *SHARP: Shape Aware Reconstruction of People in Loose Clothing.*, accepted at *IJCV (International Journal of Computer Vision)*, Novemeber 2021.

** refers to equal contribution.*

RESEARCH EXPERIENCE

Visiting Research Fellow at *Brown IVL* (Brown University) July 2023 - Nov 2023

- Visited beautiful Providence to work with Dr Srinath Sridhar on accurate contact capture from hand-object grasp videos.
- Self-supervised learning of grasping field for generative grasp synthesis of hands.

Research Assistant at *CVIT lab (IIIT Hyderabad).* May 2021 - Present

- Neural UV parameterization which attempts to generalize the parameterization over category specific classes.
- Co-Authored the ACMMM'22 work xCloth on textured garment digitzation from monocular images.
- Worked on the problem of 3D reconstruction of people in loose clothing, which resulted in the SHARP.

FUN PROJECTS

Geometry Processing

- Implementation of geometry processing algorithms from scratch.
- Implemented the "Laplacian Surface Editing algorithm" from scratch to deform the mesh based on anchor points.
- Implemented "Learning Mesh-Based Simulation with Graph Networks" as a part of course project.

HPG 2022 Student Competition

- HPG provided an implementation of a raytracer on shadertoy. The goal was to achieve the highest possible quality compared to a brute-force reference (100k samples per pixel) without a significant performance cost.
- Our implementation of raytracer was unbiased and **ranked 4th** by HPG.

ACTIVITIES

Attended the Symposium on Geometry Processing 2024 conference at MIT Boston.
Presented our project MANUS & Diva360 at CVPR'24 in Seattle.
Served as a reviewer for ACMMM'23, CVPR'24, SIGGRAPH'24, and ECCV'24 conferences.
Selected as one of 250 attendees from across India for Google Research Week'23 in Bengaluru. 2023

REFERENCES

Dr. Rahul Narain
Assistant Professor
IIT Delhi
(Research collaborator and mentor)

Dr. Srinath Sridhar
Assistant Professor & P.I of the Interactive 3D Vision & Learning Lab (IVL)
Brown University
(Research collaborator and master thesis co-advisor)

Dr. Avinash Sharma
Assistant Professor
International Institute of Information Technology Hyderabad
(Master thesis advisor and project guide)