

PRATIK KALSHETTI

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 Karnataka, India

Research Interests

Computer Vision (3D reconstruction, pose estimation, object detection, tracking, segmentation),
 Computer Graphics (inverse rendering, non-rigid registration, animation)

Education

PhD	Computer Science and Engineering	IIT Bombay	2024
Thesis: Reconstructing Hand Shape and Appearance for Accurate Tracking from Monocular Video			
Advisor: Parag Chaudhuri			
M.Tech.	Computer Science and Engineering	IIT Bombay	2018
CPI: 9.37/10			
B.Tech.	Computer Science and Engineering	IIT Jodhpur	2016
CPI: 8.32/10			
Final Project: Medical Image Segmentation Tool for reconstructing 3D bone from MRI data			

Experience

Senior Lead Engineer, Qualcomm	2024 – present
Computer Vision Systems Architect (Algorithm)	
Design and develop hardware optimized algorithms for 3D reconstruction.	
<i>Python (Open3D, ModernGL), C++ (Eigen, OpenMP)</i>	
Postdoctoral Research Fellow, IIT Bombay	2024
Collaborator: Vladislav Golyanik (Max Planck Institute for Informatics)	
Gaussian splatting based hand reconstruction from event cameras using Real-time Detection Transformers	
<i>Python (Pytorch, Pytorch3D)</i>	
Teaching Assistant, IIT Bombay	2016 – 2023
Courses: Data Interpretation and Analysis, Computer Programming and Utilization,	
Computer Vision, Computer Graphics, Advanced Computer Graphics	
Research Intern, Adobe Research	2021
Collaborators: Alec Jacobson , Oliver Wang , Thibault Groueix , Vova Kim	
Propagate frame-level edits to video by texture registration via mesh optical flow	
<i>Python (Jax, Cvxopt)</i>	
Software Developer Intern, Hindustan Aeronautics Limited	2014

Awards and Honors

- ★ [Featured in 50th SIGGRAPH at Los Angeles in 2023 for achieving a top-three place twice in the ACM Student Research Competition](#)
- ★ [Our research on hand shape model featured on ACM SIGGRAPH Blog](#)
- ★ [2nd place in ACM Student Research Competition at SIGGRAPH 2022, Vancouver](#)
- ★ [3rd place in ACM Student Research Competition at SIGGRAPH 2019, Los Angeles](#)
- ★ [Awarded TCS Research Scholar Fellowship, 2019](#)
- ★ [Winner Qualcomm Innovation Fellowship India 2017](#)
- ★ [2nd place in Inter IIT Tech Meet 2014](#)

Publications

- **Pratik Kalshetti** and Parag Chaudhuri. HandRT: Simultaneous Hand Shape and Appearance Reconstruction With Pose Tracking From Monocular RGB-D Video. In *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2025. [[Paper](#)] [[Code](#)]
- **Pratik Kalshetti** and Parag Chaudhuri. Intrinsic Hand Avatar: Illumination-aware Hand Appearance and Shape Reconstruction from Monocular RGB Video. In *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, 2024. [[Paper](#)] [[Code](#)] [[Video](#)]
- **Pratik Kalshetti**. Reconstructing Hand Shape and Appearance for Accurate Tracking from Monocular Video. In *SIGGRAPH Asia Doctoral Consortium*, 2023. [[Paper](#)] [[Poster](#)] [[Video](#)]
- **Pratik Kalshetti** and Parag Chaudhuri. Local Scale Adaptation to Hand Shape Model for Accurate and Robust Hand Tracking. In *Computer Graphics Forum (ACM SIGGRAPH/Eurographics Symposium on Computer Animation)*, 2022. [[Paper](#)] [[Code](#)]
- **Pratik Kalshetti** and Parag Chaudhuri. Local scale adaptation for augmenting hand shape models. In *SIGGRAPH Posters*, 2022. [[Paper](#)] [[Blog](#)]
- **Pratik Kalshetti** and Parag Chaudhuri. Unsupervised incremental learning for hand shape and pose estimation. In *SIGGRAPH Posters*, 2019. [[Paper](#)]
- **Pratik Kalshetti**, Manas Bunde, Parag Rahangdale, Dinesh Jangra, Chiranjay Chattopadhyay Antara: An Interactive 3D Volume Rendering and Visualization Framework In *arXiv*, 2018. [[Paper](#)]
- **Pratik Kalshetti**, Manas Bunde, Parag Rahangdale, Dinesh Jangra, Chiranjay Chattopadhyay, Gaurav Harit, Abhay Elhence. An Interactive Medical Image Segmentation Framework using Iterative Refinement. In *Computers in Biology and Medicine*, 2017. [[Paper](#)] [[Project](#)]

Relevant Courses

Visual Computing

Image Processing
Advanced Image Processing
Computer Vision
Computer Graphics
Digital Geometry Processing
Medical Image Computing

Artificial Intelligence

Optimization
Machine Learning
Advanced Machine Learning

Systems

Operating Systems
Computer Networks
Databases

Volunteer Activities

- Reviewer, IEEE Transactions on Image Processing (2025)
- Student volunteer at [SIGGRAPH 2021](#), virtual
- Student volunteer at [SIGGRAPH 2018](#), Vancouver
- Head, Public Relations and Hospitality, [IGNUS](#) 2015, IIT Jodhpur
- Coordinator, Electronics Club, IIT Jodhpur (2013)
- Student Guide, Counselling Service, IIT Jodhpur (2013)

Hobbies

Swimming, badminton, yoga, drawing, and music.