

# RAWAL KHIRODKAR

[🏠 rawalkhirodka.github.io](https://rawalkhirodka.github.io) [✉ rawalkhirodka@gmail.com](mailto:rawalkhirodka@gmail.com) [in rawalkhirodka](#) [🎓 Google Scholar](#)

## RESEARCH INTERESTS

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Fields: Computer Vision, Machine Learning, Robotics  
Topics: Digital Humans, Multimodal Reasoning, Generative AI

## EDUCATION

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Carnegie Mellon University Ph.D. in Robotics	Aug 2019 – Sep 2023 Advisor: Prof. Kris Kitani
Carnegie Mellon University M.S. in Robotics	Aug 2017 – July 2019 Advisor: Prof. Kris Kitani
Indian Institute of Technology, Bombay Bachelors in Computer Science	Aug 2013 – July 2017 Advisor: Prof. Ramakrishnan

## PROFESSIONAL EXPERIENCE

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Meta Reality Labs Research Scientist	July 2024 – Present Pittsburgh, PA
Meta Reality Labs Postdoctoral Research Scientist	Sep 2023 – July 2024 Pittsburgh, PA
Meta Reality Labs Research Intern	May 2022 – Aug 2022 Redmond, WA
Amazon Lab126 Research Intern	May 2021 – Aug 2021 Sunnyvale, CA
Amazon Lab126 Research Intern	May 2020 – Aug 2020 Sunnyvale, CA
Trexquant Finance Quantitative Analyst	May 2017 – Aug 2017 Stamford, CT

## AWARDS & HONORS

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• Best Paper Candidate, ECCV 2024, <i>top 10 papers</i>	2024
• Distinguished Paper Award, CVPR 2023, Egovis Workshop,	2023
• Amazon Graduate Fellowship,	2020
• Government of India Graduate Fellowship, <i>top 25 students</i>	2020–22
• Best Teaching Assistant Honorable Mention, IIT Bombay,	2017
• Indian National Physics Olympiad, <i>top 50 students</i>	2013
• Indian National Maths Olympiad, <i>top 50 students</i>	2013
• NTSE Scholar, Awarded to top 800 amongst 0.5 million students,	2009–13

## PUBLICATIONS

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- [1] **MHR: Momentum Human Rig**  
Meta Reality Labs Research. Mesh representation used by SAM3D-Body.  
*arxiv*, 2025
- [2] **ATLAS: Decoupling Skeletal and Shape Parameters for Expressive Parametric Human Modeling**  
Jinhyung Park, Javier Romero, Shunsuke Saito, Fabian Prada, Takaaki Shiratori, Yichen Xu, Federica Bogo, Shoou-I Yu, Kris Kitani, **Rawal Khirodkar**  
*International Conference on Computer Vision (ICCV)*, 2025
- [3] **Capture, Canonicalize, Splat: Zero-Shot 3D Gaussian Avatars from Unstructured Phone Images**  
Meta Reality Labs Research.  
*International Conference on Computer Vision (ICCV) Workshop*, 2025 (*Best Paper Honorable Mention*)
- [4] **Pippo : High-Resolution Multi-View Humans from a Single Image**  
Yash Kant, Ethan Weber, Jin Kyu Kim, **Rawal Khirodkar**, Su Zhaoen, Julieta Martinez, Igor Gilitschenski, Shunsuke Saito, Timur Bagautdinov  
*Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024 (*Highlight*)
- [5] **Harmony4D: A Video Dataset for In-The-Wild Close Human Interactions**  
**Rawal Khirodkar**, Jyun-Ting Song, Jinkun Cao, Zhengyi Luo, Kris Kitani  
*Neural Information Processing Systems, NeurIPS (Datasets and Benchmark Track)*, 2024
- [6] **URAvatar: Universal Relightable Gaussian Codec Avatars**  
Junxuan Li, Chen Cao, Gabriel Schwartz, **Rawal Khirodkar**, Christian Richardt, Tomas Simon, Yaser Sheikh, Shunsuke Saito  
*Special Interest Group on Computer Graphics and Interactive Techniques, SIGGRAPH Asia*, 2024
- [7] **Sapiens: Foundation for Human Vision Models**  
**Rawal Khirodkar**, Timur Bagautdinov, Julieta Martinez, Su Zhaoen, Austin James, Peter Selednik, Stuart Anderson, Shunsuke Saito  
*International Conference on Computer Vision (ICCV)*, 2024 (*Best Paper Candidate, 5.3k Github Stars*)
- [8] **Ego-Exo4d: Understanding Skilled Human Activity from First-and Third-Person Perspectives**  
Ego4D Consortium  
*Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024 (*Oral Presentation*)
- [9] **Real-Time Simulated Avatar from Head-Mounted Sensors**  
Zhengyi Luo, Jinkun Cao, **Rawal Khirodkar**, Alexander Winkler, Kris Kitani, Weipeng Xu  
*Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024 (*Highlight*)
- [10] **Dual-Modal 3D Human Pose Estimation using Insole Foot Pressure Sensors**  
Erwin Wu, Yichen Peng, **Rawal Khirodkar**, Hideo Koike, Kris Kitani  
*International Symposium on Mixed and Augmented Reality Adjunct (ISMAR)*, 2024
- [11] **SolePoser: Full body pose estimation using a single pair of insole sensor**  
Erwin Wu, **Rawal Khirodkar**, Hideki Koike, Kris Kitani  
*ACM Symposium on User Interface Software and Technology*, 2024
- [12] **Generalizable Neural Human Renderer**  
Mana Masuda, Jinhyung Park, Shun Iwase, **Rawal Khirodkar**, Kris Kitani  
*Meeting on Image Recognition and Understanding (MIRU)*, 2024 (*Oral Presentation*)

- [13] [Multi-Person 3D Pose Estimation from Multi-view Uncalibrated Depth Cameras](#)  
Yu-Jhe Li, Yan Xu, **Rawal Khirodkar**, Jinhyung Park, Kris Kitani  
*arxiv*, 2024
- [14] [EgoHumans: An Egocentric 3D Multi-Human Benchmark](#)  
**Rawal Khirodkar**, Aayush Bansal, Lingni Ma, Richard Newcombe, Minh Vo, Kris Kitani  
*International Conference on Computer Vision (ICCV)*, 2023 (*Oral Presentation*)
- [15] [Observation-Centric SORT: Rethinking SORT for Robust Multi-Object Tracking](#)  
Jinkun Cao, Xinshuo Weng, **Rawal Khirodkar**, Jiangmiao Pang, Kris Kitani  
*Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023
- [16] [Sequential Ensembling for Semantic Segmentation](#)  
**Rawal Khirodkar**, Brandon Smith, Siddhartha Chandra, Amit Agrawal, Antonio C.  
*arxiv*, 2022
- [17] [Occluded Human Mesh Recovery](#)  
**Rawal Khirodkar**, Shashank Tripathi, Kris Kitani  
*Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022
- [18] [Multi-Instance Pose Networks: Rethinking Top-Down Pose Estimation](#)  
**Rawal Khirodkar**, Visesh Chari, Amit Agrawal, Ambrish Tyagi  
*International Conference on Computer Vision (ICCV)*, 2021
- [19] [RePOSE: Fast 6D Object Pose Refinement via Deep Texture Rendering](#)  
Shun Iwase, Xingyu Liu, **Rawal Khirodkar**, Rio Yokota, Kris Kitani  
*International Conference on Computer Vision (ICCV)*, 2021
- [20] [Adversarial Domain Randomization](#)  
**Rawal Khirodkar**, Kris Kitani  
*arxiv*, 2019
- [21] [Domain Randomization for Scene Specific Object Detection & Pose Estimation](#)  
**Rawal Khirodkar**, Donghyun Yoo, Kris Kitani  
*Winter Conference on Applications of Computer Vision (WACV)*, 2019

## PATENTS

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- [1] [Human Pose Rendering](#)  
Shawn Hunt, Kris Makoto Kitani, Jinhyung Park, Shun Iwase, **Rawal Khirodkar**, Mana Masuda  
*US Patent App. 18/616,942*, 2025
- [2] [Multi-Person 3D Pose Estimation](#)  
Jinhyung Park, Yu-Jhe Li, **Rawal Khirodkar**, Kris Kitani, Shawn Hunt  
*US Patent App. 18/504,429*, 2025

## INVITED TALKS

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- 3D Human Understanding, *Hosted by Prof. Kristen Grauman, University of Texas at Austin* 2025
- Best Practices to building Foundation Models, *Facebook AI Research* 2024
- Sapiens: Foundation for Human Vision Models, *Meta Reality Labs* 2024
- Building 3D Datasets from Scratch, *Project Aria Workshop, CVPR* 2023

- Egocentric Human Understanding, *Massachusetts Institute of Technology, Graphics Seminar* 2023
- In-the-Wild Human Pose Estimation, *National University of Singapore, Vision Seminar* 2023
- Using Synthetic Data for Long-Tail Problems, *Carnegie Mellon University* 2022

## SELECTED MEDIA COVERAGE

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### SAPIENS

LearnOpenCV, Hacker News, MarkTechPost, TeqnoVerse, Unite AI, Sentsight News

### EGO-Exo4D

AI-Daily, University of Bristol, BTW-Media, Georgia-Tech

## PROFESSIONAL SERVICE

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### ORGANIZER

- Co-organizer, 3D Human Workshop, *Second Edition, CVPR* 2025
- Co-organizer, 3D Human Workshop, *First Edition, CVPR* 2024

### CONFERENCE REVIEWER

NeurIPS, ICML, ICLR, CVPR, ICCV, ECCV, WACV, AAAI, SIGGRAPH Asia

### JOURNAL REVIEWER

JMLR, IJCV, TPAMI

### ADMISSIONS COMMITTEE

Carnegie Mellon University: Masters in Computer Vision (*twice*), Masters in Robotics, Ph.D. in Robotics

## RESEARCH MENTORING

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- [David Park](#) (CMU RI PhD), 2023–2024
- [Jyun-Ting Song](#) (CMU MSR, now PhD at CMU RI), 2023–2024
- [Jinkun Cao](#) (CMU RI PhD, now at Meta), 2022–2023
- [Shun Iwase](#) (CMU MSR, now PhD at CMU RI), 2020–2021
- [Shengcao Cao](#) (CMU MSR, now PhD at UIUC), 2019–2020
- [Rishi Madhok](#) (CMU MSCV, now at Microsoft), 2018–2019

## TEACHING

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### TEACHING ASSISTANCE

- Computer Vision (16-720), CMU, *Instructor: Srinivasa & Kris* Fall 2021 & 2020, Spring 2018
- Statistical Techniques in Robotics (16-831), CMU, *Instructor: Kris Kitani* Spring 2019
- Math Fundamentals (16-811), CMU, *Instructor: Michael Erdmann* Fall 2019
- Machine Learning (10-601), CMU, *Instructor: Matt Gormley* Fall 2018

- Intro. to Computer Science (CS-101), IITB, *Instructor: Sharat Chandran*

Spring 2017

## GUEST LECTURES

- Computer Vision (16-720), CMU, *Backpropagation and Optimizers*

Fall 2022