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Nilesh Kulkarni

Education

University of Michigan, Ann Arbor, USA — Sept. 2019 - April 2024 (Expected)
Ph.D. in Computer Science, EECS
- Advisors: Prof. David Fouhey, Prof. Justin Johnson

Carnegie Mellon University, Pittsburgh, USA — Aug. 2017 - Aug. 2019
Masters in Robotics, Robotics Institute, School of Computer Science
- CGPA: 4.05/4.0
- Advisor: Prof. Abhinav Gupta

Indian Institute of Technology Bombay, Mumbai, India — Jul. 2011 - Jul. 2015
Bachelor of Technology (B.Tech), Computer Science and Engineering with Honours
- CGPA: 8.77/10
- Minor in Electrical Engineering
- Advisor: Prof. Suyash Awate, Prof. Ganesh Ramakrishnan

Interests

Learning and understanding the 3D structure (static and dynamic) to enable human-object (and robot) interactions in the visual/physical world.
Topics: *3D Computer Vision, Pose estimation, Generative modeling, Web-scale learning, Motion modeling, AR/VR*

Professional Experience

Waymo Research, Mountain View, CA — Jun. 2023 - Aug 2023
Research Intern, Preception Research — Xinchen Yan and Charles Qi
Google Research, Mountain View, CA — May. 2022 - Dec 2022
Research Intern, Scene Understanding Team — Prof. Leonidas Guibas
Samsung Research, Seoul, South Korea — Sept. 2015 - Jun. 2017
Research Engineer, AI Lab — Prof. Jihie Kim

Publications

NIFTY: Neural Object Interaction Fields for Guided Human Motion Synthesis
Nilesh Kulkarni, Davis Rempe, Kyle Genova, Abhijit Kundu, Justin Johnson, David F. Fouhey, Leonidas Guibas
CVPR, 2024

3DFIRES: Few Image 3D REconstruction for Scenes with Hidden Surface
Linyi Jin, **Nilesh Kulkarni**, David Fouhey
CVPR, 2024

FAR: Flexible, Accurate and Robust 6DoF Relative Camera Pose Estimation
Chris Rockwell, **Nilesh Kulkarni**, Linyi Jin, Jeong Joon Park, Justin Johnson, David Fouhey
CVPR, 2024

Learning to Predict Scene-Level Implicit 3D from Posed RGBD Data
Nilesh Kulkarni, Linyi Jin, Justin Johnson, David F. Fouhey
CVPR, 2023

What's Behind the Couch? Directed Ray Distance Functions (DRDF) for 3D Scene Reconstruction
Nilesh Kulkarni, Justin Johnson, David F. Fouhey
ECCV, 2022

Collision Replay: What does bumping into things tell you about the scene geometry?
Alexander Raistrick, **Nilesh Kulkarni**, David F. Fouhey
BMVC, 2021 (Oral)

Implicit mesh reconstruction from unannotated image collections
Shubham Tulsiani, **Nilesh Kulkarni**, Abhinav Gupta
Preprint, 2021

Articulation-Aware Canonical Surface Mapping

Nilesh Kulkarni, Abhinav Gupta, David F. Fouhey, Shubham Tulsiani
CVPR, 2020

Canonical Surface Mapping via Geometric Cycle Consistency
Nilesh Kulkarni, Abhinav Gupta*, Shubham Tulsiani*
ICCV, 2019

3D-RelNet: Joint Object and Relational Network for 3D Prediction
Nilesh Kulkarni, Ishan Misra, Shubham Tulsiani, Abhinav Gupta
ICCV, 2019

On-Device Neural Language Model based Word Prediction
Seunghak Yu*, **Nilesh Kulkarni***, Haejun Lee, Jihie Kim
27th International Conference on Computational Linguistics: System Demonstrations (COLING 2018)

Syllable-level Neural Language Model for Agglutinative Language
Seunghak Yu*, **Nilesh Kulkarni***, Haejun Lee, Jihie Kim
Empirical Methods in Natural Language Processing, Workshop on Subword and Character Level Models, (EMNLP 2017)

Robust Kernel Principal Nested Spheres
Suyash Awate*, Manik Dhar*, **Nilesh Kulkarni***
23rd International Conference on Pattern Recognition (ICPR 2016)

Research and Development of Matsya 4.0, Autonomous Underwater Vehicle
Technical Report, International Robosub Competition, 2015

* – Shared Authorship

Achievements

- Secured an **All India Rank 77** in IITJEE-2011 (amongst 0.5 million students)
- Certified as among the **Top 1%** in India, in the Indian National Chemistry Olympiad and Indian National Physics Olympiad, 2011
- Awarded Institute Technical Color (**7** among 9000), 2014
- Awarded Institute Technical Special Mention (**15** among 9000), 2013
- Awarded the Tata Welfare Trust Scholarship for Graduate Studies, 2017

Professional Service

Reviewer

- CVPR 2020, 2021, 2022, 2023
- ECCV/ICCV 2019, 2020, 2022
- NeurIPS 2020, 2021
- 3DV 2019, 2022
- AI4ALL 2021

Last Updated 3rd Jan 2024