

Sai Kumar Dwivedi

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Education

Max Planck Institute for Intelligent Systems PhD in Computer Science Supervisors: Dr. Michael J. Black, Dr. Dimitris Tzionas Senior Collaborator: Dr. Cordelia Schmid PhD Topic: Perceiving humans in in-the-wild scenarios	Oct 2021 - PRESENT Tübingen, Germany
National Institute of Technology, Rourkela Bachelors & Masters in Computer Science and Engineering	JUN 2011 - JUN 2016 Rourkela, India

Experience

Meta, Reality Labs Research Scientist Intern Controllable Generation of Human-Object Interaction in 4D	JUL 2025 - DEC 2025 Zurich, Switzerland
Mercedes-Benz R&D Computer Vision Researcher 2D Human Pose Estimation for Smart Car Interiors Developed a novel real-time headpose estimation algorithm from a monocular IR camera which was deployed as Side Mirror Selection and Rear Sunblind Control in Mercedes EQS and S-Class cars.	SEP 2017 - FEB 2020 Bangalore, India
Intel Corporation Machine Learning Engineer Deep Learning Algorithms for Edge Devices Developed Binary and Ternary CNNs similar to XNOR-Net, addressing performance issues in deeper networks by implementing innovative quantization techniques, optimizing weight representation for efficiency, particularly beneficial for edge device applications.	JAN 2016 - AUG 2017 Bangalore, India

Selected Publications

- **InteractVLM: 3D Interaction Reasoning from 2D Foundational Models**
[S.K. Dwivedi](#), D. Antić, S. Tripathi, O. Taheri, C. Schmid, M.J. Black, D. Tzionas
[CVPR 2025 — Project Page](#)
Introduced a novel framework that leverages large Visual-Language Models to estimate contact points on humans and objects from a single in-the-wild image, and using these contacts for joint reconstruction.
- **TokenHMR: Advancing Human Mesh Recovery with a Tokenized Pose Representation**
[S.K. Dwivedi*](#), Y. Sun*, P. Patel, Y. Feng, M.J. Black
[CVPR 2024 — Project Page](#)
Reformulated 3D human pose estimation as token prediction and introduced a novel Threshold-Adaptive Loss Scaling to address the paradox of declining 3D accuracy with increasing 2D precision.
- **POCO: 3D Pose and Shape Estimation using Confidence**
[S.K. Dwivedi](#), C. Schmid, H. Yi, M.J. Black, D. Tzionas
[3DV 2024 \(Oral\) — Project Page](#)
Proposed a confidence-aware framework that extends human pose and shape regressors to estimate their own prediction uncertainty, enhancing reliability in 3D reconstructions.
- **Learning to Regress Bodies from Images using Differentiable Semantic Rendering**
[S.K. Dwivedi](#), N. Athanasiou, M. Kocabas, M.J. Black
[ICCV 2021 — Project Page](#)
Introduced Differentiable Semantic Rendering to incorporate semantic clothing information into 3D human body estimation, improving accuracy in pose and shape predictions.

Other Publications

- **SDFit: 3D Object Pose and Shape by Fitting a Morphable SDF to a Single Image**
D. Antić, G. Paschalidis, S. Tripathi, T. Gevers, S.K. Dwivedi, D. Tzionas
ICCV 2025 — [Project Page](#)
- **PICO: Reconstructing 3D People In Contact with Objects**
A. Cseke, S. Tripathi, S.K. Dwivedi, A. Lakshminath, A. Chatterjee, M.J. Black, D. Tzionas
CVPR 2025 — [Project Page](#)
- **ChatPose: Chatting about 3D Human Pose**
Y. Feng, J. Lin, S.K. Dwivedi, Y. Sun, P. Patel, M.J. Black
CVPR 2024 — [Project Page](#)
- **Detecting Human-Object Contact in Images**
Y. Chen, S.K. Dwivedi, M.J. Black, D. Tzionas
CVPR 2023 — [Project Page](#)
- **ProtoGAN: Towards Few Shot Learning for Action Recognition**
S.K. Dwivedi, V. Gupta, R. Mitra, S. Ahmed, A. Jain
ICCV Workshop 2019 — [Project Page](#)
- **Out-of-Distribution Detection for Generalized Zero-Shot Action Recognition**
D. Mandal, S. Narayan, S.K. Dwivedi, V. Gupta, S. Ahmed, F. Khan, L. Shao
CVPR 2019 — [Project Page](#)
- **Progression Modelling for Online and Early Gesture Detection**
V. Gupta, S.K. Dwivedi, S. Ahmed, A. Jain
3DV 2019 (Oral) — [Project Page](#)

Academic Internship

Max Planck Institute for Intelligent Systems <i>Research Assistant</i> 3D Human Pose Estimation using Differentiable Semantic Rendering	JUL 2020 - AUG 2021 Remote, India
Tallinn University of Technology <i>Research Exchange Student</i> Designed Neural Network based face-recognition system on FPGA	SEP 2014 - JUN 2015 Tallinn, Estonia
Indian Institute of Technology, Gandhinagar <i>Research Intern</i> Developed Virtual Reality Modules for Autistic Children	APR 2014 - JUN 2014 Gandhinagar, India

Students Supervised

Suraj Bhor - Max Planck Institute for Intelligent Systems <i>Current Position:</i> Research Engineer, MPI-IS	MAR 2024 - MAR 2025
Sheetal Sahoo - HTW Berlin - University of Applied Sciences <i>Current Position:</i> Data Scientist, DLR Institut für Datenwissenschaften	JUN 2023 - JAN 2024

Awards and Honours

IMPRS-IS Scholar - 2022	<i>Max Planck Institute for Intelligent Systems, Germany</i>
Research Assistant Fellowship - 2021	<i>Max Planck Institute for Intelligent Systems, Germany</i>
Outstanding Performer Award - 2018	<i>Mercedes-Benz R&D, India</i>
Employee Recognition Award - 2017	<i>Intel Corporation, India</i>
Student Fellowship - 2015	<i>Erasmus Mundus European Union Program, Estonia</i>
Student Fellowship - 2014	<i>IIT Gandhinagar, India</i>

Academic Service

(Outstanding Reviewer: †)

CVPR Reviewer	2022, 2023, 2025 [†]
ECCV/ICCV Reviewer	2022, 2023, 2024 [†] , 2025
3DV Reviewer	2021, 2022, 2023