

# Shreyas Hampali Shivakumar

Zurich,  
Switzerland

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## Areas of interest

Computer Vision, Machine Learning

## Work Experience

### AI Research Scientist

Oct 2022 – Present

Meta Reality Labs, Zurich

- Research related to hand shape and pose estimation from ego-centric images. Deployment of hand-tracking solutions on Oculus devices.
- Collaborate and supervise intern projects leading to publications in top conferences.

### PhD Researcher

Sep 2018 – Sep 2022

TU Graz, Austria

Advisor: [Prof. Vincent Lepetit](#)

- Developed novel solutions and datasets for accurate shape and pose estimation of objects.
- Publications in top research conferences.

### Senior Lead Engineer

Jun 2015 – Jul 2018

Qualcomm Research India, Bangalore

- Development of image processing and optimization algorithms for display and camera engine in Qualcomm Snapdragon chip sets.

### Graphics Design Engineer

Jul 2012 – Jul 2015

Visual and Parallel Computing Group,  
Intel India, Bangalore

- Video processing and video encoder/decoder algorithm optimization and implementation for increased parallelism and optimum use of hardware and GPU resources.

## Education

### Doctor of Philosophy

Sep 2018 – Sep 2022

[Computer Vision for Augmented Reality Lab](#),

TU Graz, Austria

Advisor: [Prof. Vincent Lepetit](#)

Thesis: 3D Pose and Shape Estimation of Objects and Hands in Challenging Scenarios  
*pdf* : <https://tinyurl.com/7pvd3jc2>      *slides* : <https://tinyurl.com/yckzv46d>

### Master of Engineering (Signal processing)

Aug 2010 – Jul 2012

[Medical Intelligence and Language Engineering Lab](#),

Indian Institute of Science, Bangalore, India.

- Relevant Coursework : Matrix theory, Random processes, Linear and non-linear optimization, Digital signal compression, Time-frequency analysis, Spectrum analysis, Pattern recognition and neural networks, Detection and estimation theory
- CGPA : 6.5/8.0
- Thesis : Non-negative Independent Component Analysis motivated Monaural Sound Source Separation.  
*pdf* : <https://goo.gl/EiPOHT>      *slides* : <https://goo.gl/rtiGoW>
- Adviser : [Prof. A. G. Ramakrishnan](#)

## Bachelor of Technology

Aug 2006 – May 2010

Department of Electrical and Electronics Engineering,  
National Institute of Technology - Karnataka (NITK), Surathkal, India

- Specialization : Electrical and Electronics Engineering
- CGPA : 8.42/10.0
- Major project : Harmonic Analysis of Supply Currents in VFD fed Induction Motors

## Publications

- **Shreyas Hampali**, Tomas Hodan, Luan Tran, Lingni Ma, Cem Keskin, Vincent Lepetit. In-Hand 3D Object Scanning from an RGB Sequence.. In *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023
- **Shreyas Hampali**, Sayan Deb Sarkar, Mahdi Rad, Vincent Lepetit. Keypoint Transformer: Solving Joint Identification in Challenging Hands and Object Interactions for Accurate 3D Pose Estimation. In *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022
- **Shreyas Hampali\***, Sinisa Stekovic\*, Sayan Deb Sarkar, Chetan S Kumar, Friedrich Fraundorfer, Vincent Lepetit. Monte Carlo Scene Search for 3D Scene Understanding. In *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2021 (\*First two authors contributed equally)
- **Shreyas Hampali**, Mahdi Rad, Markus Oberweger, Vincent Lepetit. HOnnotate: A method for 3D Annotation of Hand and Object Poses. In *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020
- Sinisa Stekovic, **Shreyas Hampali**, Mahdi Rad, Sayan Deb Sarkar, Vincent Lepetit. General 3D Room Layout from a Single View by Render-and-Compare. In *Proc. European Conference on Computer Vision (ECCV)*, 2020
- Anil Armagan, Guillermo Garcia-Hernando, Seungryul Baek, **Shreyas Hampali**, ..., Vincent Lepetit, Tae-Kyun Kim. Measuring Generalisation to Unseen Viewpoints, Articulations, Shapes and Objects for 3D Hand Pose Estimation under Hand-Object Interaction. In *Proc. European Conference on Computer Vision (ECCV)*, 2020

## Patents

- **Shreyas Hampali**, Vincent Lepetit, Clemens Arth, “Keypoint-based Sampling for Pose Estimation”, U.S Patent filed, Application no. 63/162,305
- **Shreyas Hampali**, Sinisa Stekovic, Friedrich Fraundorfer, Vincent Lepetit, “Layout and Object Estimation for Scenes in Images”, U.S Patent filed, Application no. 63/113,722
- **Shreyas Hampali**, “Video Coding Including a Stage-Interdependent Multi-Stage Butterfly Integer Transform”, U.S. Patent 20160021369, published Jan 21, 2016.
- **Shreyas Hampali**., Ajit Rao, Yogesh Gupta and Conrad Harrison, “Artifact detection in a contrast enhanced output image”, U.S. Patent filed, Application no. 15/702,394
- **Shreyas Hampali**, Pawan Baheti and Naveen Srinivasamurthy, “Systems and methods for non-recursive image signal processor tuning using a reference image”, India Patent filed, Application no. 201841003400
- Shilpi Sahi, Pawan Baheti, Aarrushi Shandilya, **Shreyas Hampali**, Naveen Srinivasamurthy and Yogesh Gupta, “Systems and methods for assisted image signal processor tuning”, India Patent filed, Application no. 201841003395
- Pawan Baheti, Shilpi Sahu, Naveen Srinivasamurthy, Yogesh Gupta, Uday Kiran Pudipeddi, **Shreyas Hampali**, “Systems and methods for assisted image signal processor tuning using a reference image”, India patent filed, Application no. 201841003373

- **Shreyas Hampali** and Dowray Raghvendra Rao, "Remote Image based Measurement System", India Patent 4785/CHE/2012, filed November 2012.

**Scholastic  
Distinctions**

- Reviewer: CVPR'22, ECCV'22, Transactions on Visualization and Computer Graphics
- Graduate Aptitude Test in Engineering (Mar 2010) : Ranked 6th in the country in electrical engineering stream
- All India Engineering Entrance Examination (Mar 2006) : Ranked 155 in the state

**Computer  
Skills**

Languages : OpenCV, C, C++, Python, Matlab, Tensorflow  
Typography :  $\text{\LaTeX}$

**Nationality**

Indian

**Languages**

English, Kannada, Hindi