# Shreyas Hampali Shivakumar

Inffeldgasse 16/II,
Raum IE02182,
Graz, Austria 8010

https://shreyashampali.github.io/
shreyas.hampali@gmail.com

**Areas of interest**

Computer Vision, Machine Learning

**Work Experience**

**PhD Researcher** **Sep 2018 – Present**
Computer Vision for Augmented Reality Lab,
TU Graz, Austria
Advisor: Prof. Vincent Lepetit

- My research is focused on 3D scene understanding problems from one or more views. The question I try to answer in my research is, "How do we jointly explain all the objects in a cluttered scene based on the image and depth observations?"

**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.

**Product Contributions**

- Designed and shipped the directional image upscaling hardware module for display and camera engine in Qualcomm Snapdragon chipsets.
- Developed algorithms for automatic tuning of multiple modules in camera hardware pipeline to meet desired texture/noise trade-offs in the processed image. The full-fledged software used by several customers enables automatic camera pipeline tuning.
- Implemented and shipped HEVC-10 bit GPU accelerated video decoder and HEVC-8 bit hardware accelerated video encoder on Intel 5th gen processors.

**Education**

**Master of Engineering (Signal processing)** **Aug 2010 – Jul 2012**
Medical Intelligence and Language Engineering Lab,
Department of Electrical Communication Engineering,
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
- M.E. Thesis : Non-negative Independent Component Analysis motivated Monaural Sound Source Separation.
  *Thesis* : `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***, 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**, "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, Applica- tion no. 201841003373
- **Shreyas Hampali** and Dowray Raghvendra Rao, "Remote Image based Measurement System", India Patent 4785/CHE/2012, filed November 2012.

**Scholastic Honors**

- 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 : LaTeX

**Nationality**

Indian

**Languages** English, Kannada, Hindi