Shreyas Hampali Shivakumar

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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 understanding the indoor scenes involving hands and objects not just in 2D, but also in 3D using single RGB/RGBD camera. More specifically, I develop machine learning techniques and computer vision algorithms to infer 3D pose of hands and objects.

Senior Lead Engineer **Jun 2015 – Jul 2018**
Qualcomm Research India, Bangalore

- Development of image processing algorithms for display engine in Qualcomm Snapdragon chip sets. Designed a directional image interpolation algorithm and banding-artifact detector for the display hardware engine.
- Development of algorithms for automatic tuning of multiple modules in camera hardware pipeline to meet desired texture/noise trade-offs in the processed image. Camera pipeline tuning is a tedious task and is mostly performed manually by image experts.

Graphics design engineer **Jul 2012 – Jul 2015**
Visual and Parallel Computing Group,
Intel India, Bangalore

- Video processing and video encoder algorithm optimization for increased parallelism and optimum use of hardware and GPU resources.
- GPU kernel (shader) and software architecture design and development for real-time video processing solutions, video encoders and decoders (HEVC).

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**, 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

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