Abhishek Jha

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Grad. Courses ————

> Digital Image Processing
> Statistical Methods in
  Artificial Intelligence
> Computer Vision
> Optimization Methods
> Topics in ML
> Information retrieval

Positions Held ————

Volunteer
17th R&D showcase 2018
IIIT Hyderabad

Reviewer
> 2nd IAPR International Conference on Computer Vision & Image Processing (CVIP-2017, September 10-12, 2017), IIT Roorkee.
> 7th NCVPRIPG-2019.
> CVPR-2021, 2022; WACV-2021, 2023; ICCV-2021.

Program Committee
Workshop on Document Analysis and Recognition 2021

Education

Doctoral Student at ESAT (ELLIS PhD)	2019 - Present
KU Leuven, Belgium	

M.S. (Research) in Computer Science	2016 - 2019
IIIT Hyderabad, India	*CGPA: 8.67/10*

B.Tech in Electronics and Communication Engineering	2010 - 2014
Indian Institute of Technology (IIT) Dhanbad, India	*CGPA: 7.57/10*

Selected Publications (Please check Google Scholar for full list)

[1] **Abhishek Jha*,** Badri Patro*, Luc Van Gool, Tinne Tuytelaars "Barlow Contraint optimization for Visual Question Answering.", **WACV 2023**.

[2] **Abhishek Jha,** Soroush Seifi, Tinne Tuytelaars, "SimGlim: Simplified glimpse based active visual exploration", **WACV 2023**.

[3] Soroush Seifi*, **Abhishek Jha*** , Tinne Tuytelaars, "Glimpse Attend and Explore: Self-Attention for Active Visual Exploration", **ICCV 2021**.

[4] **Abhishek Jha,** Vikram Voleti, Vinay Namboodiri and C.V. Jawahar, "Cross-Language Speech Dependent Lip-Synchronization", **ICASSP 2019**.

[5] Prajwal K. R., R. Mukhopadhyay, J. Philip, **Abhishek Jha**, Vinay Namboodiri and C.V. Jawahar, "Towards Automatic Face-to-Face Translation", **ACM Multimedia (MM) 2019 (Oral)** .

[6] **Abhishek Jha,** Vinay Namboodiri and C.V. Jawahar, "Word Spotting in Silent Lip Videos", **WACV 2018**.

[7] **Abhishek Jha,** Vikram Voleti, Vinay Namboodiri and C.V. Jawahar, "Lip-Synchronization for Dubbed Instructional Videos", *Fine-grained Instructional Video Understanding,* **CVPR Workshop 2018**.

[8] Sahil Chelaramani* **Abhishek Jha*,** and Anoop Namboodiri, "Cross-modal style transfer", **ICIP 2018**.

Research Projects

[On going PhD thesis] Multimodal Representation Learning, Prof. Tinne Tuytelaars

- We are working on problems like: How to use different modalities to learn feature better suited for transfer learning? How to interpret these feature? Underlying theoretical principles behind self-supervised learning.

[Current Project] Generalized framework for Self-supervised representation learning, Prof. Tinne Tuytelaars, Dr. Yuki Asano

- We are working towards developing a theoretical framework that generalized the contemporary self-supervised techniques, like contrastive (SimCLR), cluster based (SWAV, DINO), and non-negative(SimSiam, BYOL).

Weakly supervised anomaly detection in action videos, Dr. Partha Pratim Talukdar, Dr. Anirban Cakraborty, Dr. Anand Mishra

- Given an action video, we want to check its alignment with the predefined instructions.
- Exploring the use of knowledge graph as a weak supervision for video understanding task.

Student Server Administrator
Ada: High Performance Computing(HPC) Clusters (2017-Present)
IIIT Hyderabad

Server Administrator
Cosmos: High Performance Computing (HPC) Clusters (2016-Present
CVIT,IIIT Hyderabad

Organizing Team
Summer School on Computer Vision 2016
IIIT Hyderabad

Scholastic Achievements

Recipient of Merit cum means scholarship (Govt. of India) for the year 2011-14 from IIT Dhanbad.

Qualified IIT-JEE 2010 by IIT at 98.91 percentile, with All India Rank of 5090 (out of around 470,000 students)

Hobbies

DIY-Electronics   Writing Poetry

Gaming   Web Designing

References
Prof. Tinne Tuytelaars
Visics, KU Leuven

Prof. C.V. Jawahar
IIIT-Hyderabad

Dr. Vinay Namboodiri
IIT Kanpur

Visual Dubbing: In the wild lip-motion synthesis, Dr. Vinay Namboodiri, Prof. C.V. Jawahar

- Developed a lip synchronization model for dubbed instructional videos using Time-delayed LSTM and U-Net (encode-decoder) architecture.
- This facilitates lip-motion synthesis for English dialogue videos to be in lip-sync with dubbed foreign language, like Hindi, to reduce mental fatigue of user.
- Publications: FIVER, CVPR workshop 2018 and ICASSP 2019.

Lip-reading: Audio-visual speech recognition, Dr. Vinay Namboodiri, Prof. C.V. Jawahar

- Developed a word-spotting method for recognition-free retrieval for lip-videos giving more than, 30% improvement over SOTA on largest dataset in the domain: LRW dataset.
- Publications: WACV 2018 and MVA journal.

Cross-modal style transfer, Dr. Anoop Namboodiri

- Developed a method to photo-realistically stylized images with text as style signal.
- Formulated a style vector in VGG-16 feature space using weighted combination of retrieved images. Research based on the work has been published in ICIP 2018.

Unsupervised Sketch simplification for SBIR, Dr. Vineeth Gandhi

- Developed an unsupervised method of sketch simplification: Formulated a loss function based on Fourier descriptors for human induced artifact reduction in sketch.

Work Experience

Research Assistant, VISICS, PSI, KU Leuven   Nov 2019-Present

- PhD student working on Multimodal representation learning.

Project Assistant, IISc Bangalore   Feb 2019-Oct 2019

- Visiting student collaborating with Dr. Partha Pratim Talukdar and Dr. Anirban Charaborty on a project on anomaly detection in videos using Knowledge Graphs (KG).

Research Assistant, IIIT Hyderabad   July 2016-Jan 2019

- Master's Student working on Audio-visual speech recognition and Synthesis with Prof. C. V. Jawahar and Dr. Vinay Namboodiri.

Research Fellow, CVIT, IIIT Hyderabad   July 2015-June 2016

- Developed an cross-modal multimedia retrieval system, by leveraging the semantics of the joint embedding between visual and textual modality.
- Research paper based on the work has been published in International Journal of Multimedia Information Retrieval, Springer.

Teaching Experience

Teaching Assistant, Image Analysis and Understanding ((B–KUL–H09J2A))   Spring 2023

Teaching Assistant, Info. Sys. and Sig. Proc. (B-KUL-H09M0A)   Spring 2020, 2021, 2022

Teaching Assistant, Topics in Machine Learning(CSE975)   June 2018 - Dec 2018

Mentor, Foundations of AI and ML, Industry-oriented course   Jan 2018-May 2018

Thesis Co-supervisor, ML and CV, UpGrad Education Pvt. Ltd.   Fall 2019

Summer Schools

International Computer Vision Summer School (ICVSS), Sicily, 2023

Mediterranean Machine Learning summer school (M²LSS), 2021

AI Summer School, AI Singapore, 2020