ABHISHEK JHA

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EDUCATION

M.S. (Research) in Computer Science, CGPA: 8.67
IIIT Hyderabad 2016-Present
B.Tech in Electronics and Communication Engineering, CGPA: 7.57
IIT Dhanbad 2010-2014

PUBLICATIONS

[1] Abhishek Jha, Vinay Namboodiri and C.V. Jawahar, "Word Spotting in Silent Lip Videos", IEEE Winter Conference on Applications of Computer Vision (WACV) 2018.

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

[3] Sahil Chelaramani*, Abhishek Jha* and Anoop Namboodiri, "Cross-modal style transfer", 25th IEEE International Conference on Image Processing (ICIP) 2018. (*equal contribution)

[4] Yashaswi Verma, Abhishek Jha, C.V. Jawahar, "Cross-specificity: modelling data semantics for cross-modal matching and retrieval", International Journal of Multimedia Information Retrieval, Springer, June 2018.

RESEARCH PROJECTS

Visual Dubbing: In the wild lip-motion synthesis　　　Prof. 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.
· Collected a dataset of Hindi lip-videos consisting of Actors speaking dialogue, and Andrew Ng Deeplearning.ai tutorial videos to train our proposed architecture.
· Research based on the work has been accepted to be published in FIVER, CVPR workshop 2018.

Lip-reading: Audio-visual speech recognition　　　Prof. Vinay Namboodiri, Prof. C.V. Jawahar
· Analyzed different CNN, RNNs, and attention based architectures for spatio-temporal modeling of lip-videos.
· Collected a dataset containing 100K annotated video-clips of spoken English word from Obama's public Speech.
· 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.
· Research based on the work has been published in WACV 2018 [1].

Cross-modal photo-realistic style transfer　　　Prof. Anoop Namboodiri
· Developed a method to photo-realistically stylized images with text as style signal.
· Given a style-text we first searched relevant images in word2vec space in YFCC100M dataset. These retrieved images are then ranked according to its similarity with the content image.
· Formulated a style vector in VGG-16 feature space using weighted combination of retrieved images.
· Research based on the work has been accepted in ICIP 2018 [3].

Unsupervised Sketch simplification for SBIR　　　Prof. Vineet Gandhi
· Developed an unsupervised method of sketch simplification to mitigate human generated artifacts in the sketch.
· Formulated a loss function based on Fourier descriptors for artifact reduction in sketch.
· Trained an encoder-decoder network with above loss function on TU-BERLIN dataset and used the bottle-neck representation to show sketch based image retrieval (SBIR) on Caltech-256 dataset.

Cross-modal multimedia retrieval　　　Dr. Yashaswi Verma, Prof. C.V. Jawahar

- Developed a retrieval system to models a joint embedding trained on subset of captioned images, from PASCAL-50S and Wikipedia dataset, enrapturing higher-level semantics between the two.
- We proposed a metric learning method "Cross-Specificity" to capture similarity between text and images, which agrees with the human notion of cross-modal similarity.
- We showed better retrieval performance over SOTA for both text2image and image2text retrieval. Research based on the work published in IJMIR, Springer [4].

TEACHING EXPERIENCE

Teaching Assistant: Topics in Machine Learning (CSE975)   July 2018 - Present
- My responsibility includes, assisting Course Instructor, Dr. Naresh Manwani, in creating assignments, conducting tutorial classes, term paper evaluation, and guiding students with the course projects.

Mentor: Foundations of Artificial Intelligence and Machine Learning   Jan 2018 - May 2018
- Mentored industrial professional in lab sessions by teaching concepts of AI & ML in an industry-oriented course.

WORK EXPERIENCE

Research Assistant: IIIT Hyderabad   July 2016 - Present
- Master's Student working on Audio-visual speech recognition and Synthesis with Prof. C. V. Jawahar

Intern: CVIT, IIIT Hyderabad   July 2015 - June 2016
- Developed an multimedia retrieval system, by leveraging the semantics of the joint embedding between visual and textual modality.
- Experimented with different cross-modal and multi-modal techniques of information retrieval.
- Research paper based on the work has been published in International Journal of Multimedia Information Retrieval, Springer.

Graduate Trainee: Tata Steel Ltd   July 2014 - Aug 2015
- Data analysis and optimization of Fleet management system i.e.GPS based truck dispatch system at West Bokaro Coal Mines.
- Improvement project on plant automation system for coal beneficiation at Bhelatand Coal Preparation Plant.
- Promoted as Manager Project planning in July 2015.

SKILLS

Languages: Python, Shell Scripting, Php/MySQL, MATLAB, HTML/CSS, JavaScript.
Libraries: PyTorch, Keras, CUDA, LaTeX, OpenCV, Matconvnet.

SCHOLASTIC ACHIEVEMENTS

Presented a talk on "Neural Turing Machine and Attention model" at KCIS, IIIT Hyderabad, March 2017.

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

Pre-placement Job offer by Tata Steel Ltd, based on performance during Internship 2013.

Secretary (2012-13), IEEE-Student branch, IIT Dhanbad.

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

POSITION OF RESPONSIBILITY

Server administrator (2017- present), for IIIT Hyderabad High performance computing (HPC) clusters.

Volunteer, Summer School on Computer Vision 2016, IIIT Hyderabad.

Manager, Project Planning (2015), Tata Steel Ltd.

Volunteer, IEEE international conference ICMAP 2013, IIT Dhanbad.

Teacher (2010-2012), Kartavya, an NGO for teaching underprivileged Children.