

Abhishek Aich

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RESEARCH INTERESTS

Computer Vision, Machine Learning, and Sparse Signal Optimization
• Specific Interests: Video Reconstruction, Continual Learning, Person Re-identification

EDUCATION

University of California, Riverside, CA, USA

- Ph.D. in Electrical and Computer Engineering Sep 2018 – Present
- Adviser: Dr. Amit K. Roy-Chowdhury
- GPA: 3.82 / 4.00

National Institute of Technology, Tiruchirappalli, Tamil Nadu, India

- M.S. in Electronics and Communication Engineering 2016 – 2018
- Thesis: Exploiting Sparsity for Direction of Arrival Estimation Algorithms in Linear Array
- Adviser: Dr. P. Palanisamy
- GPA: 8.80 / 10.00

Biju Patnaik University of Technology, Rourkela, Odisha, India

- B.Tech. in Electronics and Communication Engineering 2011 – 2015
- Thesis: Target Tracking using Parametric Spectral Estimation Methods
- GPA: 9.02 / 10.00

RESEARCH EXPERIENCE

Graduate Student Researcher

Sep 2018 – Present
CA, USA

- University of California, Riverside
- Group: Video Computing Group
- Supervisors: Dr. Amit K. Roy-Chowdhury
- Focus: Computer Vision and Machine Learning.

Research Scholar

Feb 2016 – Apr 2018
Tamil Nadu, India

- National Institute of Technology, Tiruchirappalli
- Group: Signal and Image Processing Lab.
- Supervisor: Dr. P. Palanisamy
- Focus: Array Signal Processing, Compressed Sensing.

Research Assistant

May 2014 – Aug 2015
Odisha, India

- Silicon Institute of Technology, Bhubaneswar
- Supervisor: Prof. Utpal K. Dash
- Focus: Array Signal Processing.

TEACHING EXPERIENCE

Teaching Assistant

Sep 2019 – Dec 2019
CA, USA

- University of California, Riverside
- Under-Graduate Course: Senior Design Project (Computer Vision) (EE175A)
- Supervisor: Dr. Amit K. Roy-Chowdhury

Teaching Assistant

Jan 2018 – Apr 2018
Tamil Nadu, India

- National Institute of Technology, Tiruchirappalli
- Graduate Course: Digital Signal and Image Processing Lab. (EC610)
- Supervisor: Dr. P. Palanisamy

SELECTED PUBLICATIONS

- [1] [Abhishek Aich*](#), Akash Gupta*, Rameswar Panda, Rakib Hyder, Salman Asif, and Amit Roy-Chowdhury, “Non-Adversarial Video Synthesis with Learned Priors,” Submitted to CVPR , 2020. (* joint first authors)
- [2] [Abhishek Aich](#), and P. Palanisamy, “A novel CS beamformer root-MUSIC algorithm and its subspace deviation analysis,” in *IEEE Region 10 Conference (TENCON)*, Penang, Malaysia, pp. 1404-1408, 2017.
- [3] [Abhishek Aich](#), and P. Palanisamy, “On application of OMP and CoSaMP algorithms for DOA estimation problem,” in *IEEE International Conference on Communication and Signal Processing (ICCSP)*, Chennai, India, 2017. (Oral)
- [4] [Abhishek Aich](#), and P. Palanisamy, “A strict bound for dimension of measurement matrix for CS beamformer MUSIC algorithm,” in *IEEE Region 10 Conference (TENCON)*, Singapore, pp. 2602-2605, 2016. (Oral)

PROJECTS	Video Generation from Learned Priors <ul style="list-style-type: none"> Supervisor: Dr. Amit K. Roy-Chowdhury Goal: Generate short video clips without pixel inputs. Designed a generative network to generate the realistic videos using learnable latent vectors, using non-adversarial approach. Introduced a novel triplet condition on the latent vectors to get good latent vector representation of video frames. 	Jul 2019 – Nov 2019
	Multi-View video frame prediction using STAR-GAN <ul style="list-style-type: none"> Supervisor: Dr. Amit K. Roy-Chowdhury Goal: Predict missing frames in one camera view using other reference camera views. Designed a STAR-GAN based model to predict missing frames in one camera by using view-parallel frames from other reference cameras. Introduced a novel cycle consistency based loss for learning a weighted relationship between missing frame and corresponding reference frames from other cameras. 	Mar 2019 – Jun 2019
	Continual Learning in Person Re-ID systems <ul style="list-style-type: none"> Supervisor: Dr. Amit K. Roy-Chowdhury Goal: Design a global Person-ReID system to work for different places without forgetting previous data distribution Designed a deep generative network based model to allow a Person Re-ID system to continuously learn different scenarios (in this case, different datasets) without forgetting past person identities in different conditions. 	Jan 2019 – Mar 2019
AWARDS & SCHOLARSHIPS	<ul style="list-style-type: none"> Deans Distinguished Fellowship Award, University of California, Riverside 	2018 – 2019
	<ul style="list-style-type: none"> MHRD Scholarship, Govt. of India 	2016 – 2018
	<ul style="list-style-type: none"> Scholar's Club, Silicon Institute of Technology, Bhubaneswar For being in the Top 3 of the Electrical and Communication Engineering Department 	2012 – 2015
	<ul style="list-style-type: none"> e-Medhabruti Scholarship, Govt. of Odisha 	2012 – 2015
TECHNICAL SKILLS	<ul style="list-style-type: none"> Programming Skills: Python, MATLAB Deep Learning Libraries: Pytorch Others: \LaTeX, MS Office, OpenCV 	
GRADUATE COURSES	<ul style="list-style-type: none"> Adv. Computer Vision • Machine Learning • Information Theory • Convex Optimization • State and Parameter Estimation Theory • Stochastic Processes • Sparsity, Structure, and Inference • Math. Methods for EE • Adv. Digital Signal Processing 	
PROFESSIONAL ACTIVITIES	Conference Reviewer: IEEE TENCON 2016, IEEE TENCON 2017	
	Journal Reviewer: IEEE Transactions on Signal Processing, Taylor & Francis International Journal of Electronics Letters, IET Signal Processing	