Abhishek Aich



Research Interests

Computer Vision: Adversarial Attacks, Person Re-Identification, Anomaly

Detection

Education

2018-Present University of California, Riverside, USA

Ph.D. Candidate in Electrical and Computer Engineering

Advisor: Amit K. Roy-Chowdhury

GPA - 3.84 / 4.00

2016-2018 National Institute of Technology, Tiruchirappalli, India

M.S.(Research) in Electronics and Communication Engineering

Advisor: P. Palanisamy

Thesis: Exploiting Sparsity for DOA Estimation Algorithms in Linear Array

GPA - 8.80 / 10.00

2011-2015 Biju Patnaik University of Technology, India

B. Tech. in Electronics and Communication Engineering

Advisor: Utpal K. Dash

Thesis: Target Tracking using Parametric Spectral Estimation Methods

GPA - 9.02 / 10.00

Research Experience

Sept 2018-Present University of California, Riverside, USA

Graduate Student Researcher, Video Computing Group

- o Advisor: Amit K. Roy-Chowdhury
- Focus: Computer Vision, Deep Learning.

June 2021-Sep 2021 Mitsubishi Electric Research Laboratories, Cambridge, Massachusetts, USA

Research Intern, Computer Vision Group

- o Mentor: Kuan-Chuan Peng
- Focus: Video Anomaly Detection.

June 2020-Sep 2020 United Imaging Intelligence, America, Cambridge, Massachusetts, USA

Research Intern, Vision and Robotics Group

- o Mentor: Ziyan Wu, Srikrishna Karanam, Meng Zheng
- Focus: Video-based Person Re-Identification.

Feb 2016-April 2018 National Institute of Technology, Tiruchirappalli, India

Research Scholar, Signal and Image Processing Lab.

- Advisor: P. Palanisamy
- Focus: Array Signal Processing, Compressed Sensing.

May 2014-Aug 2015 Silicon Institute of Technology, Bhubaneswar, India

Research Assistant

- o Advisor: Utpal K. Dash
- Focus: Array Signal Processing.

Publications (Google Scholar Profile)

NeurIPS 2021 Adversarial Attacks on Black Box Video Classifiers: Leveraging the Power of Geometric Transformations.

Shasha Li*, Abhishek Aich*, Shitong Zhu, M. Salman Asif, Chengyu Song, Amit K. Roy-Chowdhury, Srikanth Krishnamurthy (* joint first authors)

Advances in Neural Information Processing Systems, 2021

ICCV 2021 Spatio-Temporal Representation Factorization for Video-based Person Re-Identification

Abhishek Aich, Meng Zheng, Srikrishna Karanam, Terrence Chen, Amit K. Roy-Chowdhury, Ziyan Wu

IEEE/CVF International Conference on Computer Vision, 2021

CVPR 2020 Non-Adversarial Video Synthesis with Learned Priors

Abhishek Aich*, Akash Gupta*, Rameswar Panda, Rakib Hyder, M. Salman Asif, Amit K. Roy-Chowdhury (* joint first authors)

IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2020

ACMMM 2020 ALANET: Adaptive Latent Attention Network for Joint Video Deblurring and (Oral) Interpolation

Akash Gupta, Abhishek Aich, Amit K. Roy-Chowdhury

ACM International Conference on Multimedia, 2020

ISBI-W 2020 Deep Quantized Representation for Enhanced Reconstruction

Akash Gupta, Abhishek Aich, Kevin Rodriguez, G. Venugopala Reddy, Amit K. Roy-Chowdhury

IEEE International Symposium on Biomedical Imaging Workshops, 2020

TENCON 2017 A Novel CS-Beamformer root-MUSIC Algorithm and its Subspace Deviation **Analysis**

Abhishek Aich, P. Palanisamy IEEE Region 10 Conference, 2017

TENCON 2016 A Strict Bound for Dimension of Measurement Matrix for CS-Beamformer (Oral) MUSIC Algorithm

Abhishek Aich, P. Palanisamy IEEE Region 10 Conference, 2016

ICCSP 2017 On Application of OMP and CoSaMP Algorithms for DOA Estimation Prob-

(Oral) lem

Abhishek Aich, P. Palanisamy

IEEE International Conference on Communication and Signal Processing, 2017

Teaching Experience

Teaching Assistant University of California, Riverside

Supervisor: Amit K. Roy-Chowdhury

- EE 175A/B Senior Design Project (Computer Vision): Fall 2019 Spring 2020
- EE 175A/B Senior Design Project (Computer Vision): Fall 2020 Spring 2021

Teaching Assistant National Institute of Technology, Tiruchirappalli

Supervisor: P. Palanisamy

o EC 610 Digital Signal and Image Processing Lab.: Jan 2018 - April 2018

Honors & Awards

2020-2021 Student Volunteer Award. ICLR 2021, ICML 2021, NeurIPS 20

2018-2019 **Deans Distinguished Fellowship Award.** University of California, Riverside

2016-2018 MHRD Scholarship. Govt. of India

2012-2015 Scholar's Club. Silicon Institute of Technology, Bhubaneswar, India

o Top 3 rankers of the Electrical and Communication Engineering Department

2012-2015 **e-Medhabruti Scholarship.** Govt. of Odisha, India

Press Coverage

VentureBeat IBM's AI generates new footage from video stills March 2020

o Coverage of our CVPR 2020 paper on Video Generation

• Article: https://tinyurl.com/yxdxm7m8

Skills

Languages Python

Libraries PyTorch

Toolbox/Software MATLAB, OpenCV

Professional Services

Journal Reviewer IEEE Transactions on Image Processing (TIP)

IEEE Transactions on Signal Processing (TSP)

Taylor & Francis International Journal of Electronics Letter

IET Signal Processing

Conference Reviewer Conference on Computer Vision and Pattern Recognition (CVPR)

International Conference on Computer Vision (ICCV)

Program Committee AAAI 2021-(AIBSD), CVPR 2021-(HVU, TCV, DNetCV)/2020-(NAS),

(Workshops) ECCV 2020-MVA