





# Abhishek Aich

WCH 371, University of California, Riverside, California 92521, USA  
aaich001@ucr.edu •  •  •  • 

## RESEARCH INTERESTS

Computer Vision, Deep Learning, and Sparse Signal Optimization  
• Specific Interests: Learning from Videos

## EDUCATION

### University of California, Riverside, California, USA

- Ph.D. in Electrical and Computer Engineering
- Adviser: Prof. Amit K. Roy-Chowdhury
- GPA: 3.84 / 4.00

Sep 2018 – Present

### National Institute of Technology, Tiruchirappalli, Tamil Nadu, India

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

2016 – 2018

### Biju Patnaik University of Technology, Odisha, India

- B.Tech. in Electronics and Communication Engineering
- Thesis: Target Tracking using Parametric Spectral Estimation Methods
- Supervisor: Prof. Utpal K. Dash
- GPA: 9.02 / 10.00

2011 – 2015

## RESEARCH EXPERIENCE

### Mitsubishi Electric Research Laboratories, Cambridge

- Research Intern
- Group: Computer Vision Group
- Mentors: Dr. Kuan-Chuan Peng
- Focus: Video Anomaly Detection.

Massachusetts, USA

Jun 2021 – Sep 2021

### United Imaging Intelligence, America, Cambridge

- Research Intern
- Group: Vision and Robotics Group
- Mentors: Dr. Ziyang Wu, Dr. Srikrishna Karanam, Dr. Meng Zheng
- Focus: Video-based Person Re-Identification.

Massachusetts, USA

Jun 2020 – Sep 2020

### University of California, Riverside

- Graduate Student Researcher
- Group: Video Computing Group
- Supervisor: Prof. Amit K. Roy-Chowdhury
- Focus: Computer Vision and Deep Learning.

California, USA

Sep 2018 – Present

### National Institute of Technology, Tiruchirappalli

- Research Scholar
- Group: Signal and Image Processing Lab.
- Supervisor: Prof. P. Palanisamy
- Focus: Array Signal Processing, Compressed Sensing.

Tamil Nadu, India

Feb 2016 – Apr 2018

### Silicon Institute of Technology, Bhubaneswar

- Research Assistant
- Supervisor: Prof. Utpal K. Dash
- Focus: Array Signal Processing.

Odisha, India

May 2014 – Aug 2015

## TEACHING EXPERIENCE

### University of California, Riverside

- Teaching Assistant
- Course: Senior Design Project (EE175A/B, Computer Vision)
- Supervisor: Prof. Amit K. Roy-Chowdhury

California, USA

Fall 2019(/2020) – Winter 2020(/2021)

### National Institute of Technology, Tiruchirappalli

- Teaching Assistant
- Graduate Course: Digital Signal and Image Processing Lab. (EC610)
- Supervisor: Prof. P. Palanisamy

Tamil Nadu, India

Jan 2018 – Apr 2018

## SELECTED PUBLICATIONS

- [1] Shasha Li\*, Abhishek Aich\*, Shitong Zhu, M. Salman Asif, Chengyu Song, Amit K. Roy-Chowdhury, Srikanth Krishnamurthy, “Adversarial Attacks on Black Box Video Classifiers: Leveraging the Power of Geometric Transformations”, *Thirty-fifth Conference on Advances in Neural Information Processing Systems (NeurIPS)*, 2021. (\* joint first authors)
- [2] Abhishek Aich, Meng Zheng, Srikrishna Karanam, Terrence Chen, Amit K. Roy-Chowdhury, and Ziyang Wu, “Spatio-Temporal Representation Factorization for Video-based Person Re-Identification”, *IEEE/CVF International Conference on Computer Vision (ICCV)*, 2021.
- [3] Akash Gupta, Abhishek Aich, and Amit K. Roy-Chowdhury, “ALANET: Adaptive Latent Attention Network for Joint Video Deblurring and Interpolation”, *ACM International Conference on Multimedia (ACM MM)*, 2020. (Oral)
- [4] Abhishek Aich\*, Akash Gupta\*, Rameswar Panda, Rakib Hyder, M. Salman Asif, and Amit K. Roy-Chowdhury, “Non-Adversarial Video Synthesis with Learned Priors”, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020. (\* joint first authors)
- [5] Akash Gupta, Abhishek Aich, Kevin Rodriguez, G. Venugopala Reddy, and Amit K. Roy-Chowdhury, “Deep Quantized Representation for Enhanced Reconstruction”, *ISBI 2020 Workshop*, 2020.
- [6] Abhishek Aich, and P. Palanisamy, “A Novel CS-Beamformer root-MUSIC Algorithm and its Subspace Deviation Analysis”, *IEEE Region 10 Conference (TENCON)*, 2017.
- [7] Abhishek Aich, and P. Palanisamy, “On Application of OMP and CoSaMP Algorithms for DOA Estimation Problem”, *IEEE International Conference on Communication and Signal Processing (ICCSP)*, 2017. (Oral)
- [8] Abhishek Aich, and P. Palanisamy, “A Strict Bound for Dimension of Measurement Matrix for CS-Beamformer MUSIC Algorithm”, *IEEE Region 10 Conference (TENCON)*, 2016. (Oral)

## AWARDS & SCHOLARSHIPS

- **Student Volunteer Award.** NeurIPS 2020, ICLR 2021, ICML 2021 2020 – 2021
- **Deans Distinguished Fellowship Award.** University of California, Riverside 2018 – 2019
- **MHRD Scholarship.** Govt. of India 2016 – 2018
- **Scholar’s Club.** Silicon Institute of Technology, Bhubaneswar 2012 – 2015
  - For being in the Top 3 of the Electrical and Communication Engineering Department
- **e-Medhabruti Scholarship.** Govt. of Odisha 2012 – 2015

## TECHNICAL SKILLS

- **Programming Skills:** Python, MATLAB
- **Deep Learning Libraries:** PyTorch
- **Scientific Computing Libraries:** numpy, scipy, sciKit-learn, matplotlib
- **Others:** L<sup>A</sup>T<sub>E</sub>X, MS Office, OpenCV, Jupyter

## GRADUATE COURSES

- Introduction to Deep Learning • 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:**  
CVPR 2022, ICCV 2021, CVPR 2021–(HVV, TCV, DNetCV)/2020–(NAS), ECCV 2020–MVA, IEEE TENCON 2016/2017
- Journal Reviewer:**  
IEEE TIP, IEEE TSP, TF IJEL, IET SP