

Abhishek Aich

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Work Experience

- April 2023-Present **NEC Laboratories, America**, San Jose, California, USA
Researcher, Media Analytics Department
 - Focus: Agentic AI, Vision-Language Models, Open-Vocabulary Perception, Efficient Vision Transformers.
- Jun 2022-Sep 2022 **NEC Laboratories, America**, San Jose, California, USA
Research Intern, Media Analytics Department
 - Mentor: Yumin Suh, Manmohan Chandraker
 - Focus: Dynamic Networks for Multi-Task Learning.
- Jun 2021-Sep 2021 **Mitsubishi Electric Research Laboratories**, Cambridge, Massachusetts, USA
Research Intern, Computer Vision Group
 - Mentor: Kuan-Chuan Peng
 - Focus: Video Anomaly Detection.
- Jun 2020-Sep 2020 **United Imaging Intelligence, America**, Cambridge, Massachusetts, USA
Research Intern, Vision and Robotics Group
 - Mentor: Ziyan Wu, Srikrishna Karanam, Meng Zheng
 - Focus: Video-based Person Re-Identification.

Education

- 2018-2023 **University of California, Riverside**, USA
Ph.D. in Electrical and Computer Engineering
Advisor: Amit K. Roy-Chowdhury
- 2016-2018 **National Institute of Technology, Tiruchirappalli**, India
M.S.(Research) in Electronics and Communication Engineering
Advisor: P. Palanisamy
- 2011-2015 **Biju Patnaik University of Technology**, India
B.Tech. in Electronics and Communication Engineering

Publications ([Google Scholar profile](#), *: joint first authors)

- NeurIPS 2025 **iFinder: Structured Zero-Shot Vision-Based LLM Grounding for Dash-Cam Video Reasoning**
Manyi Yao, Bingbing Zhuang, Sparsh Garg, Amit Roy-Chowdhury, Christian Shelton, Manmohan Chandraker, Abhishek Aich
Advances in Neural Information Processing Systems, 2025
- ICLR 2025 **Progressive Token Length Scaling in Transformer Encoders for Efficient Universal Segmentation**
Abhishek Aich, Yumin Suh, Samuel Schulter, Manmohan Chandraker
The Thirteenth International Conference on Learning Representations, 2025
- ICCV-W 2025 **Mapillary Vistas Validation for Fine-Grained Traffic Signs: A Benchmark Revealing Vision-Language Model Limitations**
Sparsh Garg, Abhishek Aich
IEEE/CVF ICCV Workshop (4th DataCV Workshop and Challenge), 2025

WACV-W 2026	Image-Specific Adaptation of Transformer Encoders for Compute-Efficient Segmentation Manyi Yao, <u>Abhishek Aich</u> , Yumin Suh, Amit K. Roy-Chowdhury, Christian R. Shelton, Manmohan Chandraker
arXiv 2024	Resolving Inconsistent Semantics in Multi-Dataset Image Segmentation Qilong Zhangli, Di Liu, <u>Abhishek Aich</u> , Dimitris Metaxas, Samuel Schulter
CVPR-W 2024	Improving the Efficiency-Accuracy Tradeoff of DETR-Style Models in Practice Yumin Suh, Dongwan Kim, <u>Abhishek Aich</u> , Samuel Schulter, Jong-Chyi Su, Bohyung Han, Manmohan Chandraker <i>IEEE/CVF CVPR Workshop (Efficient Deep Learning for Computer Vision), 2024</i>
ICCV 2023	Efficient Controllable Multi-Task Architectures <u>Abhishek Aich</u> , Samuel Schulter, Amit K. Roy-Chowdhury, Manmohan Chandraker, Yumin Suh <i>IEEE/CVF International Conference on Computer Vision, 2023</i>
NeurIPS 2022	GAMA: Generative Adversarial Multi-Object Scene Attacks <u>Abhishek Aich*</u> , Calvin-Khang Ta*, Chengyu Song, Srikanth Krishnamurthy, M. Salman Asif, Amit K. Roy-Chowdhury <i>Advances in Neural Information Processing Systems, 2022</i>
WACV 2023	Cross-Domain Video Anomaly Detection without Target Domain Adaptation <u>Abhishek Aich</u> , Kuan-Chuan Peng, Amit K. Roy-Chowdhury <i>IEEE/CVF Winter Conference on Applications of Computer Vision, 2023</i>
WACV 2023	Leveraging Local Patch Differences in Multi-Object Scenes for Generative Adversarial Attacks <u>Abhishek Aich</u> , Shasha Li, Chengyu Song, M. Salman Asif, Srikanth Krishnamurthy, Amit K. Roy-Chowdhury <i>IEEE/CVF Winter Conference on Applications of Computer Vision, 2023</i>
MICCAI 2022	Poisson2Sparse: Self-Supervised Poisson Denoising From a Single Image Calvin-Khang Ta*, <u>Abhishek Aich*</u> , Akash Gupta*, Amit K. Roy-Chowdhury <i>International Conference on Medical Image Computing and Computer Assisted Intervention, 2022</i>
NeurIPS 2021	Adversarial Attacks on Black Box Video Classifiers: Leveraging the Power of Geometric Transformations Shasha Li*, <u>Abhishek Aich*</u> , Shitong Zhu, M. Salman Asif, Chengyu Song, Amit K. Roy-Chowdhury, Srikanth Krishnamurthy <i>Advances in Neural Information Processing Systems, 2021</i>
ICCV 2021	Spatio-Temporal Representation Factorization for Video-based Person Re-Identification <u>Abhishek Aich</u> , Meng Zheng, Srikrishna Karanam, Terrence Chen, Amit K. Roy-Chowdhury, Ziyuan Wu <i>IEEE/CVF International Conference on Computer Vision, 2021</i>
CVPR 2020	Non-Adversarial Video Synthesis with Learned Priors <u>Abhishek Aich*</u> , Akash Gupta*, Rameswar Panda, Rakib Hyder, M. Salman Asif, Amit K. Roy-Chowdhury <i>IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2020</i>
ACMMM 2020 (Oral)	ALANET: Adaptive Latent Attention Network for Joint Video Deblurring and Interpolation Akash Gupta, <u>Abhishek Aich</u> , Amit K. Roy-Chowdhury <i>ACM International Conference on Multimedia, 2020</i>

ISBI-W 2020	Deep Quantized Representation for Enhanced Reconstruction Akash Gupta, <u>Abhishek Aich</u> , Kevin Rodriguez, G. Venugopala Reddy, Amit K. Roy-Chowdhury <i>IEEE International Symposium on Biomedical Imaging Workshops, 2020</i>
TENCON 2017	A Novel CS-Beamformer root-MUSIC Algorithm and its Subspace Analysis <u>Abhishek Aich</u> , P. Palanisamy <i>IEEE Region 10 Conference, 2017</i>
TENCON 2016 (Oral)	A Strict Bound for Dimension of Measurement Matrix for CS-Beamformer MUSIC Algorithm <u>Abhishek Aich</u> , P. Palanisamy <i>IEEE Region 10 Conference, 2016</i>
ICCSP 2017 (Oral)	On Application of OMP and CoSaMP Algorithms for DOA Estimation Problem <u>Abhishek Aich</u> , P. Palanisamy <i>IEEE International Conference on Communication and Signal Processing, 2017</i>

Patents (*: granted)

US Patent App. 18/904,571	Language-based object detection and data augmentation Samuel Schulter, <u>Abhishek Aich</u> , Vijay Kumar
US Patent App. 18/968,277	Expanding token lengths in transformer encoders Samuel Schulter, <u>Abhishek Aich</u> , Yumin Suh, Samuel Schulter
US Patent App. 18/918,317	Detection of rare and unseen traffic participants and scene elements Samuel Schulter, <u>Abhishek Aich</u> , Manmohan Chandraker
US Patent App. 18/893,037	Efficient transformer-based panoptic segmentation <u>Abhishek Aich</u> , Yumin Suh, Samuel Schulter, Manyi Yao
US Patent App. 18/659,785	Panoptic segmentation with multi-dataset training and part-whole awareness Samuel Schulter, <u>Abhishek Aich</u>
US Patent App. 18/503,313	Single Training Sequence for Neural Network Usable for Multi-task Scenarios Yumin Suh, Samuel Schulter, Xiang Yu, <u>Abhishek Aich</u>
US Patent 12,315,242*	Method & System for Zero-Shot Cross Domain Video Anomaly Detection <u>Abhishek Aich</u> , Kuan-Chuan Peng

Honors & Awards

2025	First Place in U.S. DOT Intersection Safety Challenge. ○ Awarded First Place Prize (\$750,000) in U.S. Department of Transportation Intersection Safety Challenge 2025
2023-2025	Business Contribution Awards, NEC Laboratories America. ○ (Q2-2025) "Insurance customer co-creation leading to investment by NEC and positive market reaction" ○ (Q3-2024) "Customer acquisition and FCH exhibit for GenAI autonomy Simulation and DevOps"
2023	Doctoral Consortium Award. WACV 2023
2022	NeurIPS Scholar Award. NeurIPS 2022
2020-2021	Student Volunteer Award. NeurIPS 2020, ICLR 2021, ICML 2021
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 ○ Top 3 rank holders of the Department of Electrical and Communication Engineering
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 link]

Talks

- Feb 2025 **Demystifying Vision Transformers: From Theory to Industry Insights**
o Computer Science Colloquium Talk, Sonoma State University, CA, USA
- Jan 2023 **Cross-Domain Video Anomaly Detection without Target Domain Adaptation**
o Oral Presentation, IEEE WACV 2023
- Jan 2023 **Leveraging Local Patch Differences in Multi-Object Scenes for Generative Adversarial Attacks**
o Oral Presentation, IEEE WACV 2023

Professional Services

- Area Chair IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2026
13th International Conference On Data Science (IKDD CODS), 2025
- Workshop Organizer Anomaly Detection with Foundation Models (ADFM), CVPR 2026
Artificial Intelligence with Biased or Scarce Data (AIBSD), AAAI 2026
Anomaly Detection with Foundation Models (ADFM), ICCV 2025
1st Workshop on Scalable and Efficient Artificial Intelligence Systems, AAAI 2025
1st Workshop on Out-of-Label Hazards in Autonomous Driving, WACV 2025
1st Workshop on Artificial Intelligence with Biased and Scarce Data, AAAI 2025
2nd Workshop on Artificial Intelligence with Biased and Scarce Data, AAAI 2024
- Journal Reviewer IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
IEEE Transactions on Information Forensics and Security (TIFS)
IEEE Transactions on Image Processing (TIP)
IEEE Transactions on Signal Processing (TSP)
IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
IEEE Transactions on Services Computing (TSC)
Elsevier Pattern Recognition (PR)
Taylor & Francis International Journal of Electronics Letter
IET Signal Processing
- Conference Reviewer International Conference on Artificial Intelligence and Statistics (AISTATS)
International Conference on Learning Representations (ICLR)
Advances in Neural Information Processing Systems (NeurIPS)
Conference on Computer Vision and Pattern Recognition (CVPR)
International Conference on Computer Vision (ICCV)
European Conference on Computer Vision (ECCV)
Winter Conference on Applications of Computer Vision (WACV)
Association for the Advancement of Artificial Intelligence (AAAI)
Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP)
- Program Committee CVPR 2022-(TCV, DNetCV)/2021-(HVU, TCV, DNetCV)/2020-(NAS), AAAI 2021-(AIBSD), ECCV 2020-MVA

Mentoring

Ryoki Kanayama (University of Electro-Communications (UEC), Japan)	2025-26
HyunBeom Cho (Korea University, Republic of Korea)	2025-26
Xu Cao (University of Illinois Urbana-Champaign, USA)	2025-26
Manyi Yao (University of California, Riverside, USA)	2023-26