

About the Event

IEEE SPS AIVA 2021 (Artificial Intelligence for Visual Application) was a collaborative initiative organized by *IEEE SPS Delhi Chapter* along with numerous IEEE SPS Section Chapters across the IEEE India Council Region in association with Signal Processing and Biomedical Imaging Lab (SBILab), Indraprastha Institute of Information Technology-Delhi (*IIIT-D*), which solely aimed to illuminate students regarding the latest trends in the field of Artificial Intelligence and Computer Vision. This event was scheduled from **24th June to 28th June 2021**, the event proved to be an unprecedented compendium of webinars, hands-on workshops, networking sessions with SPS Leaders, and industrial seminars.

The 5-day extravaganza enabled the youth to access brand-new avenues to build their careers in the Signal Processing realm and eliminate the barriers between college academics and research-based learning skills. It unfolded the revolutionary implications of AI in the domain of Computer Vision in a colossally interactive and systematic manner to enlighten young minds. The event also targeted at enhancing the outreach and membership of the IEEE Signal Processing Society and recognizing researchers by means of a “Call for Poster Presentations”.

Motivation

IEEE SPS Delhi Chapter was established in 2015. We were awarded the chapter of the Year in 2020. Even during the pandemic, this chapter has remained extremely active by hosting various talks in virtual mode. Eminent speakers like Prof. Gaurav Sharma, Prof. Dimriti Van De Ville, Prof. Janusz Konrad, Prof. Ami Wiesel and industry professionals like Dr. Lovekesh Vig and others have presented various talks in previous years that saw really good attendance records. This consistent record of this chapter had established the ability to conduct this event successfully.

Technical Description

Machine learning and computer vision are two fields under the umbrella of artificial intelligence that offer effective methods for acquisition, processing, interpretation of images and videos. The purpose of this school was to facilitate individuals to advance their knowledge in the area of Machine learning for visual applications, starting from fundamentals and culminating at the point where they can understand prospective problems for novel research. We propose to achieve this with the help of stellar researchers in the aforementioned areas, hands-on sessions from industry experts and avid participation from research scholars across the country.

Outline on the Topics Covered

Machine Learning algorithms and deep learning for signal processing applications in Image/Video Processing

Organizers

➤ **Core Organizing SPS Chapter:** IEEE Signal Processing Society Delhi Chapter (SPS DC)

➤ **Core Organizing Committee**

- Dr. Anubha Gupta (Chair, IEEE SPS DC)
- Dr. Ranjitha Prasad (Vice Chair, IEEE SPS DC)
- Dr. Geetika Jain Saxena (Treasurer, IEEE SPS DC)
- Mr. Tarun Sharma (Secretary, IEEE SPS DC)
- Mr. Sachin Motwani (Newsletter Editor, IEEE SPS DC)
- Mr. Ramneek Kalra (Publicity and Outreach Advisor, IEEE SPS AIVA 2021 | Delhi Section)

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➤ **IEEE SPS Chapters**

- IEEE SPS Bombay Chapter
- IEEE SPS Bangalore Chapter
- IEEE SPS Gujarat Chapter
- IEEE SPS Hyderabad Chapter
- IEEE SPS Kerala Chapter
- IEEE SPS Kolkata Chapter
- IEEE SPS Madras Chapter
- IEEE SPS Pune Chapter
- IEEE SPS UP Chapter

- IEEE SPS Vizag Chapter
- **Other Organization(s)**
 - Signal Processing and Biomedical Imaging Lab (SBILab), Indraprastha Institute of Technology-Delhi (IIIT-D)
- **Opening Ceremony**
 - Dr. Ranjan Bose (Director, IIIT-Delhi)
 - Dr. Wing-kin (Ken) Ma (IEEE SPS Regional Director-at-Large for R10 and the Editor in-Chief of IEEE Transactions on Signal Processing)
- **IEEE India Council's SPS Chapter Chairs' Meeting (Members in Attendance)**
 - Dr. Chirag Paunwala (Chair, IEEE SPS Gujrat Chapter)
 - Dr. M. V. Rajesh Maliyeckal (Chair, IEEE SPS Kerala Chapter)
 - Mr. Harshu Yagnik (ExCom Member, IEEE SPS Gujarat Chapter)
 - Dr. Mita Paunawala (ExCom Member, IEEE SPS Gujrat Chapter)
 - Dr. N. Venkateswaran (ExCom Member, IEEE SPS Madras Chapter)
 - Dr. Satish Kumar Singh (Chair, IEEE SPS Uttar Pradesh Chapter)
 - Dr. T. S. N. Murthy (Chair, IEEE SPS Vizag Bay Chapter)
 - Dr. V. K. Bairagi (Chair, IEEE SPS Pune Chapter)
- **Closing Ceremony**
 - Dr. Suresh Nair (Chair, IEEE India Council)
 - Dr. Purnima Lala Mehta (Visiting Assistant Professor, Aarhus University, Denmark, Europe)

Speakers

- Dr. Venkatesh Babu (Professor, IISC, Bangalore)
- Dr. Tammam Tillo (Professor, IIIT-Delhi)
- Dr. Anubha Gupta (Professor, IIIT-Delhi; Lead SBILab, IIIT-D)
- Dr. Chetan Arora (Associate Professor, IIT-Delhi)
- Dr. Vineeth N. Balasubramanian (Associate Professor, IIT-Hyderabad)
- Dr. Arnav Bhavsar (Assistant Professor, IIT-Mandi)
- Dr. Suraj K. (Research Scientist, Intel Labs)
- Dr. Geetika Sharma (VR Consultant, Co-founder & Ex-CTO Vizara Technologies)
- Ms. Ramya Hebbalaguppe (Senior Scientist, TCS Research, Delhi)
- Ms. Pavithra Solai Jawahar (AI Practitioner, Earlier Co-founder of Kint, acqui-hired by Swiggy)

Registration Fee

The event was free for everyone interested to join.

Poster Presentation Session

The poster session provided an excellent opportunity to present early-stage or ongoing research, and to receive interesting and valuable feedback from experienced reviewers. We also strongly encouraged post-graduate students, especially in their early stages of PhD to submit a short-extended abstract. Selected submissions were invited to present posters (in an online mode) and videos at the workshop.

Topics of interest included all aspects related to the theme of the workshop, i.e., AI for Visual Applications. Best poster was to be awarded with IEEE SPS AIVA best poster gift box and a cash prize of **Rs.10,000/- (Rupees Ten Thousand Only)**.

Winners

The award was shared by two teams mentioned below (in no specific order)

➤ **TEAM 1**

1. Siddharth Murpani, Student at the Warsaw University of Technology
2. Rakshita Jaiswal, Student at UIET Panjab University
3. Yog Gupta, Student at UIET Panjab University

➤ **TEAM 2**

1. Reshna S, Associate Professor, Dept. of ECE, TKM College of Engineering
2. Sajeena A, Associate Professor, Dept. of ECE, TKM College of Engineering

Schedule

<i>Date and Time (IST)</i>	<i>Session</i>
June 24, 2021 0830-0915 0930-1230 1400-1700	Inauguration Ceremony Wood hyperspectral images segmentation using CNN by Dr. Tammam Tillo Generative Adversarial Networks with contemporary advances and applications by Dr. Arnav Bhavsar
June 25, 2021 0930-1230 1400-1500 1500-1700 1700-1800	Lecture 1: Fairness for Computer Vision Systems Lecture 2: Adversarial Attack on Computer Vision Systems By Dr. Chetan Arora CNNs in Blood Cancer Detection by Dr. Anubha Gupta Adversarial Robustness of Deep Models by Prof. Venkatesh Babu Poster Presentation Session
June 26, 2021 0930-1100 1100-1230	A framework for Visual Saliency Driven Label placement and 3D model overlay for Intelligent Human-Computer Interface by Ms. Ramya Hebbalaguppe AI for Virtual Reality Systems by Dr. Geetika Sharma
June 27, 2021 0930-1130 1100-1230 1230-1330	Computer Vision in Automotive Industry by Dr. Suraj K. Information Extraction using Graph Convolutional Networks from Semi-Structured Documents by Ms. Pavithra Solai Jawahar IEEE India Council's SPS Chapter Chairs' Meet
June 28, 2021 0930-1230	Continual Learning in Computer Vision by Dr. Vineeth N Balasubramanian

Membership Distribution Initiative

A special initiative of free SPS membership distribution was carried out in order to give some IEEE (non-SPS) members a taste of the SPS membership. In this, all the IEEE student (non-SPS) member attendees and first 15 IEEE (non-SPS) Professional member attendees are provided with free SPS membership from IEEE SPS AIVA 2021. Also, on the decision of IEEE SPS DC, this present was extended to all the non-SPS IEEE member volunteers also.

Attendance Matrix

	IEEE Members	Non-IEEE Members
Attendees	114	288
Guests/Speakers	4*	9
Volunteers	23	0
Total	141	297

*IEEE India Council Chapter Chairs not included

Contact and Connect

Join IEEE	https://www.ieee.org/membership/join/index.html
Join SPS	https://signalprocessingsociety.org/community-involvement/membership
Email	mailto:spsdc.ieee@gmail.com
Website	http://webinabox.vtools.ieee.org/wibp_home/index/CH10719
Instragram	https://www.instagram.com/ieeespsdc/
IEEE Collabratec	https://ieee-collabratec.ieee.org/app/workspaces/6637/IEEE-Signal-Processing-Society-Delhi-Chapter/activities
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Facebook	https://www.facebook.com/search/top?q=ieee%20signal%20processing%20-society%20delhi%20chapter
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YouTube	https://www.youtube.com/channel/UCwuy_pSaLX7gWZi7mvXvSGQ