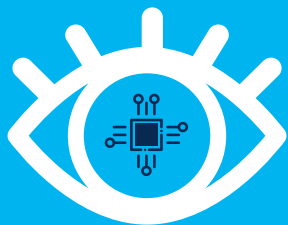


CVPR 2023 Reveals Top Five Computer Vision Trends

JUNE 18-22, 2023

CVPR

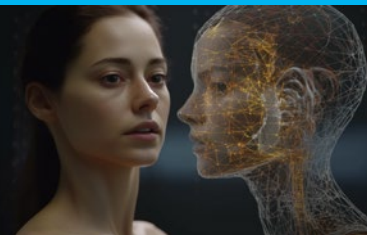


Sponsored by the IEEE Computer Society (CS) and the Computer Vision Foundation (CVF), the Computer Vision and Pattern Recognition Conference (CVPR) 2023 addressed the latest developments in new research in support of artificial intelligence (AI), machine learning (ML), augmented and virtual reality (AR/VR), deep learning, and much more.

With a record number of paper submissions, 9,155, and an acceptance rate of just 25.8 percent, CVPR 2023 delivered a program of the highest quality, offering critical knowledge of the computer vision and pattern recognition topics that are transforming the industry, including the following five trends.

1. Render the real.

With 3-D from multi-view and sensors; image and video synthesis and generation; and humans: face, body, pose, gesture, and movement the top three largest paper categories at this year's event, there's an increasing emphasis on bringing computer vision closer to a real experience, particularly for AR/VR needs. In fact, [several award finalists](#) were focused on that work.



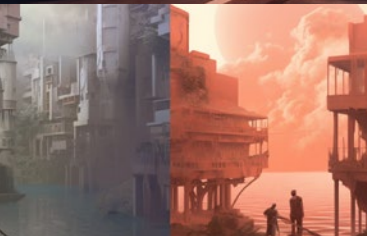
2. Create an autonomous ecosystem.

The work on autonomous vehicles has moved beyond the vehicle itself into the virtual environments that can be developed for testing of the technology. Research now extends beyond safely moving in the world to anticipating what can and may go wrong with the vehicle's functionality or its environment. It's about planning ahead and using technology to train the vehicle's response.



3. Converge image and language for more sophisticated techniques.

Image-language models have become increasingly important as generative AI continues to scale. Research and announcements at this year's event evaluated novel approaches for strengthening the innate connections between modalities. A number of highlighted papers explored these elements.



4. Collaborate to meet market demand.

In today's landscape, major industry players are balancing product development with research needs. This results in more widespread collaboration between academia, government, and industry to meet the burgeoning technological demands in this field.



5. Embrace diversity and inclusion to combat bias.

For AI technology to be applicable in fields like healthcare, finance, biometrics and beyond, algorithms need to minimize, and ultimately eliminate, inherent bias. That's why a number of [CVPR papers](#) addressed fair representation.

This work takes not only scientific advancement but broad input, which means having an inclusive community contributing. That's why IEEE CS, CVF and the IEEE CS Technical Community on Pattern Analysis and Machine Intelligence (TCPAMI) collectively put forward \$300,000 USD for registration and travel grants aimed at drawing in a widely diverse community.



For more information, visit cvpr2023.thecvf.com.

Industry Leaders Unveil Key Advances at CVPR 2023

CVPR 2023 offered a true convening of expansive research and applied opportunity. Platinum sponsors of this year's event took the opportunity to emphasize their areas of expertise; release new research, products, and information; and network with researchers around the globe.



Ant Research

Ant Research focuses on developing five key technologies to prepare for a distributed future, including privacy computing and graph computing.



Amazon Science

With more than 20 papers and participation in another eight workshops, Amazon Science came to CVPR in a big way. Consider efforts to create a geographically inclusive vision-and-language pre-trained model and involvement in workshops as diverse as autonomous driving and 3D vision and robotics as examples of the large-scale reach of their team.



Apple

From work on a generative framework capable of generating a 3D face that can be rendered at various user-defined lighting conditions and views, learned purely from 2D images in-the-wild without any manual annotation, to designing efficient neural network backbones for mobile devices, Apple's research at CVPR speaks to its advancement goals.



Cruise

With continued work on autonomous vehicle improvements, Cruise's latest release enhanced driving behavior by 20% for higher speed roads, particularly during right turns and in intersections, yielding and asserting smoothly at speed. The release also refined the detection and tracking of debris and animals by up to 50%, enabling the AV to more safely and smoothly drive around these objects.



Google

Another major CVPR contributor, Google had approximately 90 papers up for presentation, four of which were best paper candidates, and another 11 were highlight papers. This year, a chief focus for the research team falls on the latest techniques for application to various areas of machine perception.



Lambda

Lambda discussed their on-demand cloud account and the instant access it provides to high-performance GPUs through change to an on-demand cloud account. In addition, they offered a deeper dive into Scalar GPU servers.



Meta AI

Meta AI unveiled I-JEPA, an ML model that learns abstract representations of the world through self-supervised learning on images. In addition, they announced Voicebox: Text-Guided Multilingual Universal Speech Generation at Scale. The company also gave a keynote on computer vision's potential in addressing climate change.



Qualcomm

Qualcomm published seven papers at CVPR 2023, focusing on computer vision, personalization and federated learning, and power efficiency.



Toyota Research Institute

Toyota Research Institute's CVPR research demonstrated new, enhanced ways to address 3D object detection, advancements in model-predictive control frameworks, and better target tracking.



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Save the Date:
CVPR 2024

16-21 June, Seattle, Wash., U.S.A



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For more information, visit cvpr2023.thecvf.com.