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IEEE VR 2024

VGTC Virtual Reality Significant New Researcher Award

Ana Serrano

The 2024 IEEE VGTC Virtual Reality Significant New Researcher Award goes to Professor Ana Serrano of the Universidad de Zaragoza (Spain), in recognition of her outstanding contributions to virtual reality, computational imaging, and perception of material appearance. Her work has greatly impacted the community's understanding of attention and viewer behavior in virtual reality. In addition to investigating saliency in virtual reality, Dr. Serrano has introduced a generative model of realistic scanpaths for 360° images that represent how users explore a virtual environment. Her other contributions include movie editing in virtual reality and its effects on the perception of continuity, perception-based material modeling such as gloss management, and understanding the effects of shape and illumination on the perception of material appearance. Her work has produced many high-profile publications and received numerous accolades within and beyond the field of virtual reality.

Dr. Ana Serrano joined Universidad de Zaragoza (Spain) as an Assistant Professor in 2021. She is affiliated with the Computer Science Department and the Engineering Research Institute of Aragon. Following completion of her Ph.D. at the Universidad de Zaragoza's Graphics & Imaging Lab in April 2019, and prior to her beginning her current position, she was a postdoctoral researcher at the Max Planck Institute for Informatics. Her work, informed by knowledge of human perception, aims at understanding and predicting user behavior and attention in XR in order to improve image generation techniques and to achieve more realistic and immersive content. Her research is performed in the context of creating engaging user-centered VR experiences that effectively convey content creators' intentions while allowing users to create their own experiences. Dr. Serrano is widely recognized for her high-impact advances in the field, including the prediction of visual gaze patterns in panoramas and the exploration of multimodal interactions in VR.

Dr. Serrano and colleagues have made substantial contributions to understanding viewer behavior in immersive environments, starting with their influential study "Saliency in VR" about how users visually explore 360° panoramas. Nominated for the Best Paper at IEEE VR 2018, this work provided foundational insights and a valuable dataset that has had a substantial impact in the VR community. Building on that work, the team developed ScanGAN360, a model to predict visual gaze patterns in VR. This paper received the Best Journal Paper award at IEEE VR 2022.

Further exploring the sensory dimensions of VR, Dr. Serrano investigated audio-visual interactions and how some auditory stimuli degrade visual performance in virtual reality. The findings were published in Scientific Reports. The knowledge and insights from her works on different sensory modalities were brought together and integrated in a recent survey of multimodality in VR that was published in ACM Computing Surveys.

During the past year, she has continued her work on visual behavior by contributing to the study of task-dependent visual behavior in VR. In addition, she has been part of a team producing a pivotal contribution to the field: D-SAV360, a dataset comprising 4,609 head and eye scanpaths for 360º videos with directional audio. This data set enables comprehensive studies of the effect of multimodal interactions on visual behavior in VR environments. Both these works were presented at ISMAR 2023.

Dr. Serano also actively works in the study of cinematography in VR. In this field, she has collaborated with the EMMY award-winning studio Felix & Paul, with results published at SIGGRAPH 2017 and IEEE VR 2020. During her time at Adobe research, she worked towards developing a visualization algorithm for reproducing motion parallax in 360º videos recorded using affordable 360º video capture systems. One of her goals was increasing public access to this technology. This work was successful and was nominated for the Best Journal Paper in IEEE VR 2019 and was presented at the annual Adobe MAX Sneak Peeks conference, where Adobe presents its most innovative and promising projects.

Dr. Serrano also contributes to the graphics and virtual reality communities in service roles such as program committee member and session chair for conferences including IEEE ISMAR, IEEE VR, ACM SIGGRAPH, Eurographics, and Eurographics Symposium on Rendering. She has given many invited talks at academic and industrial venues. Due to her well known research achievements and service, Dr. Serrano has been recognized with awards including the Adobe Research Fellowship in 2017, NVIDIA Graduate Fellowship in 2018, the Eurographics Ph.D. Award in 2020, and the Eurographics Young Researcher Award in 2023.

Award Information

The IEEE VGTC Virtual Reality Significant New Research Award was established in 2022. It recognizes significant contributions by an individual whose last degree was within the past seven years. Nominations can be submitted either via the VGTC website at https://tc.computer.org/vgtc/awards/vr-award-nominations/ or via direct email to vgtc-vr-awards@vgtc.org.