**Topic：Cross-domain Image Synthesis**

**Abstract:** Cross-domain images are images with different representations obtained by the same target through different sensors or acquisition means. Cross-domain synthesis refers to generating an image of another domain from an image of one domain using the correlation of content and the complementarity of expression between cross-domain images. This research topic includes many sub-fields. Face sketch-photo synthesis, image super-resolution, medical image synthesis, and image style transfer all belong to the scope of this topic. This lecture discusses the topic of cross-domain image synthesis from the following four aspects: (1) **Background**, giving the definition and import applications of cross-domain image synthesis; (2) **Research progress**, reviewing the development history of cross-domain image synthesis and introducing some representative studies; (3) **Recent advances**, exploring cutting-edge techniques and new tasks in this field; (4) **Challenges and future directions**, discussing the typical challenges and highlighting the future research directions.

**Personal Profile**

**Wang Nannan, Huashan distinguished professor at Xidian University, is currently the associate director of State Key Laboratory of Integrated Services Networks (ISN). In recent years, he has been engaged in the research of computer vision and machine learning. His research mainly involves cross-domain image reconstruction and credible identity authentication**, including sketch-photo synthesis and recognition, image/video super-resolution reconstruction, image restoration, behavior analysis and recognition, person re-identification, etc. **He has published over 150 papers in top international journals and conferences such as IEEE TPAMI, IJCV, CVPR, ICCV, ECCV, NeurIPS, ICML, etc.** He has received Outstanding Youth Foundation from National Natural Science Foundation of China. He has been selected as Young Elite Scientists Sponsorship Program by China Association of Science and Technology (CAST). He has been awarded the first prize for Ministry of Education Natural Science Award, the first prize for Shaanxi Province Science and Technology Award, the second prize of China Society of Image and Graphics (CSIG) Natural Science Award. He is the recipient of the Chinese Association for Artificial Intelligence (CAAI) Outstanding Doctorate Dissertations Award and Shaanxi Province Outstanding Doctorate Dissertations Award. **He is the associate editor-in-chief of The Visual Computer.**

