# When Image Processing Meets Novel Learning Techniques: Opportunities and Challenges

With the development of deep learning techniques, the traditional field of image processing is increasingly influenced by deep learning. Some typical tasks, such as image and video compression, image reconstruction, image matching, have achieved significant improvements within the framework of deep learning. In recent years, with the emergence of new network architectures or models, such as transformer, mamba, NeRF, diffusion model, as well as large language models, new opportunities and challenges have arisen. This workshop aims to provide a platform for researchers and industry experts to discuss recent advancements, share insights, and address the key challenges for applying novel deep learning techniques to typical image processing or computer vision tasks.

## Workshop Objectives:

- Explore recent advancements in typical image processing tasks.
- Discuss challenges and opportunities associated with the integration of novel learning techniques and typical image processing tasks.
- Foster collaboration and knowledge exchange among researchers, practitioners, and industry professionals in the field of image processing and computer vision.

• Identify potential research directions and opportunities for future innovation in the field of image processing.

## Workshop Topics:

The workshop will cover, but is not limited to, the following topics:

- Enhancement, restoration, compression, feature detection and matching for images or videos.
- Light field processing (view synthesis, depth estimation, feature matching etc.)
- Scene reconstruction with point clouds, NeRF, Gaussian Splatting etc.
- Novel network backbones for image processing and computer vision tasks (transformer, mamba etc.).
- Image or video generation with generative models and their control.
- Large language models for image processing and computer vision tasks.

## Workshop Organizers:

Dr. Jinglei Shi, currently a lecturer inComputer Science School of Nankai University (NKU), before that, he worked a post-doctoral research fellow atFrench Institute for Research in Computer Science and Automation (INRIA), France from 2020-2021. He received my PhD degree in Computer Science at INRIA, under the supervision of Prof.Christine Guillemotand A/Prof.Xiaoran Jiang. He gothis Bachelor's degree in Electronic Information Engineering

fromUESTCand Master's degree & Engineer's degree in Image Processing fromIMT Atlantique. His research focuses on deep learning, computational photography, and 3D vision, etc.

### **Important Dates:**

- Workshop Paper Submission Deadline: September 15, 2024
- Notification of Acceptance: October 15, 2024

Papers are to be submitted as PDF via the site: <u>https://edas.info/N32633</u>. Please select the corresponding workshop when submitting your paper.