

Theme: Mobile Solution

- Sub theme: AI-based Space-Time Video Super-Resolution at Mobile

Mobile devices have become an essential component of our daily lives, providing constant connectivity and convenient access to a wide range of services. Among the numerous tasks carried out on mobile devices, recording and viewing videos has become particularly popular. Nonetheless, resource-constrained mobile devices frequently have difficulties in delivering the best video quality due to constraints such as restricted computing capabilities, power limitations, and bandwidth budgets. Considering this, we propose the development of an AI algorithm capable of video interpolation and super-resolution simultaneously on mobile devices. This algorithm will enhance the visual quality of videos by generating intermediate frames and increasing the resolution while taking into account the limitations of the device.

We are interested in various topics, including:

1. Extreme-scale of resolution upsampling and/or frame rate up conversion
The delivery of high-quality video content to mobile devices is often hindered by limitations in bandwidth. To overcome this obstacle, the focus is on device-side processing capabilities to improve the frame rate and resolution of videos that have extremely low resolution and/or frame rate.
2. Model compression for space-time super-resolution networks
The progress of space-time super-resolution techniques involves the development of lightweight algorithms suitable for the task, incorporating the concept of model compression. Whether utilizing existing off-the-shelf algorithms or proposing novel approaches, these algorithms prioritize computational efficiency while maintaining high-quality results.
3. Video codec assisted space-time super-resolution
The advancements in space-time super-resolution techniques have the potential for expansion beyond image inputs to include bitstream inputs generated by standard video codecs.

※ The topics are not limited to the above examples and the participants are encouraged to propose the original idea.

※ Funding: Up to USD 150,000 per year