

## DEMO Abstract

### Mosaic Generation: Challenges and Future Directions

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A mosaic can be considered as a static component (or background) of a scene that does not change over a sequence of frames. It is generated by computing the global motion between frames, warping according to the global motion, and then blending the frames. Mosaic generation has the following challenges: limited domain of videos for mosaic generation, accuracy, and reliability. In our presentation, we provide information about our research results: 1) video classification for mosaic generation, 2) synthetic video generation for evaluation of mosaic generation, 3) novel blending algorithm for a specific set of tracking videos, and 4) interactive video reproduction using mosaics.

We classify videos into six classes based on the suitability for mosaic generation: static, scenery, commercial-like, earthquake-like, complex, and news, education, and surveillance-like videos. We also show examples of challenges in mosaic generation and provide preliminary mosaic generation results for challenging videos. We explain synthetic videos with various camera patterns from a ground-truth image with and without occlusion. We also incorporate blocks of (shape) objects for those videos. Then, we check the accuracy of mosaic generation using the synthetic videos. After generating the mosaic, original frames can be played on top of the mosaic. This provides spatio-temporal interactivity and interactive reproduction of videos. We develop a novel blending algorithm for a set of videos where the objects are kept almost in the middle of a frame. As future work, we discuss 1) semantic index structure for querying spatio-temporal content of videos, 2) spatio-temporal querying using gamepads, and 3) mosaic generation and visualization for high-definition video. In our demo, we will present sample videos of our experiments.

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