Special Issue

Mathematical Foundations and Innovations in Advanced Image and Video Processing

Message from the Guest Editor

Advanced Image and Video Processing (AIVP), synergized with Generative AI for Content Creation (AIGC), has emerged as a paradigm shift. AIGC, powered by deep learning (e.g., GANs, diffusion models), redefines content generation (e.g., text-to-image synthesis and video evolution) and mathematical theory. This Special Issue aims to encourage research that explores innovative techniques and theoretical frameworks at the intersection of mathematical theory and AIGC media generation. We are particularly interested in studies that bridge mathematical rigor with AIGC innovation, such as developing generative models rooted in differential geometry, optimization theory, or algebraic topology; or advancing mathematical tools to enhance content diversity, semantic coherence, and computational efficiency in media synthesis. Furthermore, we invite submissions that investigate the application of these mathematical–AIGC synergies in diverse domains, including artistic content creation, dynamic scene generation, and multimodal data representation.

Guest Editor

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About the Journal

Message from the Editor-in-Chief

The journal *Mathematics* publishes high-quality, refereed papers that treat both pure and applied mathematics. The journal highlights articles devoted to the mathematical treatment of questions arising in physics, chemistry, biology, statistics, finance, computer science, engineering and sociology, particularly those that stress analytical/algebraic aspects and novel problems and their solutions. One of the missions of the journal is to serve mathematicians and scientists through the prompt publication of significant advances in any branch of science and technology, and to provide a forum for the discussion of new scientific developments.

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