



## Symmetry-Based Biomedical Image Processing

Guest Editor:

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### Message from the Guest Editor

Dear Colleagues,

Symmetry relates to the harmony of proportions and is a pervasive property of nature. It is ubiquitous, essential, compact, and aesthophysiological in human anatomy and living organisms. Significant asymmetry of a structure in medical images can usually indicate the presence of pathology. Extensive studies and medical applications exist to fortify the concept of symmetry as a general feature of objects. For example, facial symmetry is an important metric to assess attractiveness and can serve as a tool to evaluate the effectiveness of plastic surgery. In assessing skeletal age, only one hand and wrist is usually needed as the skeletal maturation of human hands and wrists exhibits bilateral symmetry. The bilateral symmetry of bones suggests using intact/uninjured bones as a template to reconstruct the contralateral bone in orthopedics. Studies showing that the human pelvis exhibits strong bilateral symmetry across the sagittal plane have been applied for fracture reconstruction. In addition to subjective perception, quantitative measurements of symmetry are important to improve semi-automatic and/or automatic analysis of medical images...





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## Editor-in-Chief

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## Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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