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Fred S. Azar
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Editors

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Introduction

Data generated by novel imaging technologies such as optical tomography are complex to analyze due to the inherent scattering of light through anatomical systems. Cross validation and direct comparison with established methods in other imaging modalities are especially challenging. There is critical need for new computational techniques to provide rapid, accurate and cost-effective means for quantification and characterization of such data, either independently or integrated with other modalities. These computational methods will enable faster acceptance of novel imaging modalities into viable clinical and/or pre-clinical systems. The applications are diverse and range from imaging at the cellular level to the whole body while incorporating molecular, functional and anatomical information.

The conference objectives are to provide a forum:

- to review and share recent developments in novel multimodal imaging techniques,
- to report development of novel computational methods, and
- to bring together the optical imaging and image analysis communities.

Topics include, but are not limited to:

- multimodal imaging integrating structural, molecular and functional information
- 2D, 3D, 4D, tomographic and / or multi-spectral imaging
- imaging analysis and/or image processing techniques applied to optical imaging (e.g. visualization, segmentation, registration)
- detection and diagnostic analysis techniques which may provide better quantitative and/or diagnostic insight into clinical and pre-clinical imaging (e.g. methods for quantitative measurements, computer-assisted diagnosis)
- imaging analysis and/or image processing techniques used to combine optical imaging with other imaging modalities (e.g. MR, x-ray, PET)
- image analysis, computational methods and reconstruction approaches which may help bring optical imaging into the clinic (visual rendering of complex data set, novel algorithms for assisted optical reconstruction)
- clinical evaluation of these new technologies (Physiological and functional interpretation of image data, visual perception and observer performances, validation of quantitative assessment of optical signatures in-vivo).

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