Postprocessing and Cross Validation

Modeling and Quantification

Basic (Physics) Principles of Quantification Using Optical Techniques
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Learning Objectives:

- To understand the limitations and pitfalls related to quantification in optical imaging.
- To gain an overview of optical techniques suitable for robust quantification in different imaging scenarios.

Optical imaging has come into widespread use in research laboratories. In particular, approaches based on near infrared fluorescence have enabled versatile and convenient whole-body imaging of small animals. However, the simple photographic techniques most commonly applied today ignore the effects of light attenuation in tissue and can produce misleading results if not properly understood. This talk will cover the principles of light propagation and detection of optical signals to provide the audience with a fundamental understanding of the physics involved. Techniques for optical imaging will be analyzed to provide an understanding of their performance with respect to quantification accuracy. Advanced approaches to correction and quantitative volumetric imaging will be introduced.