Abstract

Diffuse Optical Tomography (DOT) is an imaging technique which uses Near Infrared light to estimate the functional information of biological soft tissues. The recovery of internal optical parameters are illustrated using non-invasive boundary measurements. DOT involves solving an inverse problem which has an ill-condition of non linearity. To overcome this drawback regularization techniques are implemented in the inverse formulation. In this work a model
based regularization technique is proposed, which uses model resolution matrix and data resolution matrix to improve the resolution of the reconstructed image. Simulations are performed by reconstructing a 1% noise data in MATLAB interfaced with NIRFAST and the results illustrates model based regularization improves the resolution of the object with better absorption coefficients.

References


Index Terms

- Computer Science
- Electronics

Keywords

- Diffuse Optical Tomography
- Near Infrared
- Regularization Inverse Problem
- Absorption Coefficient.