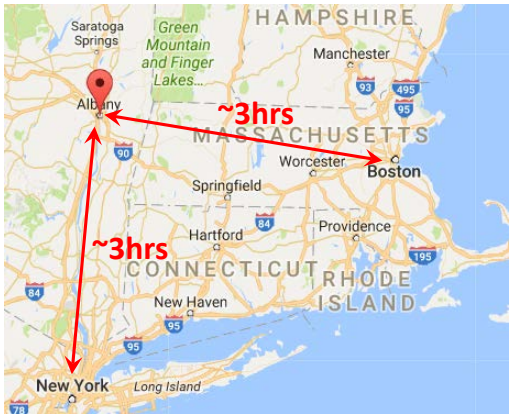
Call for Candidates
Research Internship

Title: Fluorescence Lifetime Imagining corrected by Spatial Frequency Domain Imaging for Optically Guided Surgery.

Location: Rensselaer Polytechnic Institute
Troy, New York State, USA



Duration: 6 months (March–August 2017)

Stipend: $500/Month

Laboratory: Functional and Molecular Optical Imaging Laboratory

Research:

Optical image-guided cancer surgery is a promising technique to adequately determine tumor margins by tumor-specific fluorescent biomarkers imaging, potentially resulting in complete resection of tumor tissue with improved survival. However, identification of the photons coming from the fluorophores is complicated by autofluorescence, optical tissue properties, accurate fluorescent targeting agents and quantitative imaging systems. Especially, heterogeneous background optical properties associated to the structural and functional variations of the tissue in wide-field applications leads to significant quantification errors in fluorescence signals.

The research project will focus on integrating Spatial Frequency Domain Imaging (SFDI) techniques developed at ICube with Lifetime-based imaging approaches developed at RPI to improve the quantitative mapping of pathological tissues for radical resection and optimal clinical results. This collaborative project will entail experimental investigation in clinically relevant phantoms as well as data analysis. At the outcome of the project, it is expected that imaging protocols and data analysis workflow will be established in controlled settings prior to in vivo translation. .

Advisors:

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