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High throughput biomedical image analysis and imaging informatics for pathology and radiology images

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We are living in a revolutionary age, witnessing the next-generation of biomedical image and information emerged in astounding volume and rich formats. Nowadays images and videos are widely used in biological research and medical clinical applications. Manual image analysis is extremely time consuming, labor intensive, prone to errors, and lack of reproducibility. In this talk, we will present the recent research work in the biomedical image computing and imaging informatics (BICI2) lab at University of Kentucky. We will start from 3D/4D radiology image analysis. A prediction based collaborative tracking algorithm will be presented for robust 3D heart tracking. Manifold learning and non-rigid registration is applied to generate shape and motion priors. Machine learning based classifiers using cascade boosting tree and marginal space learning are used to automatically detect the position and boundaries of the heart. In addition, we will present several existing active projects in BICI2 lab that are related to digital pathology and high performance computing, including the high throughput image registration using graphic processing unit and Grid/Cloud enabled imaging informatics system for breast cancer, lung cancer, and muscle diseases.

Biography

Lin Yang has completed his PhD in Computer Engineering on 2009 from Rutgers University. He is an Assistant Professor in the Division of Biomedical Informatics, Department of Biostatistics, University of Kentucky. He is the Director of the Biomedical Image Computing and Imaging Informatics Lab. He has published more than 50 papers in peer-reviewed journal and conference articles. He has been serving as an editorial board member of three international journals.

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