

## **Modern Analytics for Medical Imaging Studies**

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**Abstract:** Contemporary imaging scientists typically collect a wealth of measurements on relatively few subjects. Studies are therefore usually underpowered. There is a need for automated tools that are able to identify a reduced set of multidimensional salient features that drive the biological mechanisms of disease, function and development. This talk will discuss methods for computing the features and statistical comparisons commonly needed by population studies in medical imaging.

**Bio:** James Gee, Ph.D., is Director of the Penn Image Computing and Science Laboratory, HHMI-NIBIB Interfaces Program in Biomedical Imaging and Informational Sciences, Center for Information Driven Radiology and the UESTC-UPenn Center for Digital Health Innovation, and Co-Director of the Translational Biomedical Imaging Center, all at the University of Pennsylvania, Philadelphia. Dr. Gee's interests are broadly in the field of biological and medical image analysis and computing. He is well known for a long track record of methodological innovation in nearly every area of the field and his commitment to translating research accomplishments into acclaimed open-source software – his group's ITK-SNAP, ANTs, DTI-TK and ITK software are consistently ranked as the best performing and most widely used applications in segmentation, registration, DTI analysis and morphometry. Dr Gee and his group's large portfolio of interdisciplinary collaborations spans different model systems and the major modalities in biological and medical imaging, in integrative studies of structure-function relationships of the eye, brain, breast, lung, heart and musculoskeletal system in health and disease.