UNIVERSITÀ DELLA CALABRIA
DIPARTIMENTO DI **MATEMATICA E INFORMATICA**

Center for Neurological Imaging

DeMaCS

Seminar

SPINE: an integrated web-accessible collaborative environment to accelerate image-centered clinical research and advance clinical practice

24 May 2022, 17:00
Room MT10, cubo 30B, floor 4

For ONLINE attendance register here: bit.ly/spine-2022

Abstract - We have developed a web-based "virtual laboratory" named SPINE (Structured Planning and Implementation of New Experiments) that integrates data federation, image analysis workflows (automated and interactive), as well as statistical/mathematical modeling. The system is meant to be "question-centric", as opposed to "data-centric", and is designed to enable the easy, yet rigorous design and execution of experiments using large datasets of medical images and related clinical and biomarker data. The main distinctive features of SPINE are: a workflow management system that allows for rapid integration, testing, validation, and large-scale application of complex image analysis workflows; a tight interaction between scientific experimentation and education and image analysis standardization; interactive, task-specific modules that will enable new levels of transparency, openness, and collaboration. Furthermore, SPINE aims to provide computer scientists that are keen on solving critical unmet needs using AI with a rich algorithm development, testing and deployment platform; and clinical scientists with ready access to complex algorithmic and modeling approaches through intuitive interfaces, as well as a structured environment for data collection, organization, and sharing, as well as collaborative experimental design, execution, and review.

Charles Guttmann obtained his medical degree from the University of Zurich, Switzerland. He then did a post-graduate course in experimental medicine and biology at the same Institution, and obtained a medical doctorate with a thesis concerning the invasivity of glioblastoma cells in the central nervous system. Dr. Guttmann is the founding Director of the Center for Neurological Imaging (CNI) at Brigham and Women's Hospital and an Associate Professor of Radiology at Harvard Medical School. He has over 30 years of experience in brain MRI research, with particular emphasis on neurological diseases. In his role as director of the CNI, he has assembled and directed multi-disciplinary teams of scientists on a variety of projects. He has extensive expertise at the interface between software development and its application to clinical research, and has published extensively on the validation of image analysis approaches. His team applies quantitative neuroimaging strategies to the study of neurological diseases, such as multiple sclerosis (MS) and cerebro-vascular diseases in the elderly. Dr. Guttmann has also spearheaded the development of informatics infrastructures in support of large-scale neuroimaging discovery research, including an image-centered, multi-disciplinary database and image analysis workflow management system, as well as - more recently - a virtual laboratory for collaborative neuroscience research.