Intelligent Medical Imaging Analytics

Abstract: This talk will give insights to the most crucial problems in medical imaging, especially in the areas of computational neurosurgery and neuroanatomy and how these can be improved by using intelligent algorithms, large scale analytics and open source software. Furthermore, this talk will give examples of how Dr. Garyfallidis was able to provide solutions to some hard problems of tractography by introducing new efficient and robust computational methods to perform automatic segmentation and registration. Tractography is a 3D modeling technique used to visually represent neural tracts from diffusion MRI. Diffusion MRI is an MRI technique that can be used to study non-invasively the structural connectivity of the brain and other organs.

Biography: Dr. Garyfallidis is the founder and lead engineer of Diffusion Imaging in Python (DIPY), currently the largest open source project in the development of diffusion MRI methods. Diffusion MRI is a unique non-invasive MRI technique that is used to study the structural connectivity of the brain. Dr. Garyfallidis holds a PhD in medical imaging from the University of Cambridge, UK, and worked as a Postdoctoral researcher with Professor Maxime Descoteaux at the Sherbrooke Connectivity Imaging Lab of the University of Sherbrooke, CA. Dr. Garyfallidis has performed research at nearly all levels of diffusion MRI analysis. Recently, he started focusing more on the problems of segmentation and registration of tractography. Some of his most known inventions are QuickBundles and Streamline-based Linear Registration (SLR). More information can be found at his website [http://garyfallidis.github.io](http://garyfallidis.github.io)