NiBabel: Conductor for a cacophony of neuro-imaging file formats

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Neuro-imaging research has always involved spending countless hours on getting access to data in an intoxicating variety of formats. While the neuro-imaging community attempts to converge on a reasonable subset of the available formats for the purpose of data exchange, *convenient* data access remains a challenge that affects interoperability of software and perceived joy of research collaborations.

To fully exploit the power of a growing manifold of Python-based software for neuro-imaging research it is essential to have an easy-to-install, easy-to-use system that facilitates access to data in any necessary format. *NiBabel*[1] aims to be this basic IO layer for neuro-imaging data format access in Python. While other solutions have been around for several years (e.g., PyNIfTI), they were limited in their scope, the variety of supported data formats, or had portability issues that made their deployment unnecessarily difficult.

This presentation introduces the general architecture of the pure-Python package NiBabel that accents on the concept of making common tasks simple, and difficult tasks possible. It will illustrate NiBabel's basic image model and show how it can be tailored to represent images in various flavors of ANALYZE, GIFTI, NIfTI1, MINC, and PAR/REC – without loosing access to information embedded in the meta data of the respective formats. Moreover, the presentation will outline how developers can contribute functionality, and use NiBabel as an open platform for general purpose neuro-imaging data format access that is available to any Python user or developer – without licensing restrictions and minimal dependencies.

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[1] http://nipy.sourceforge.net/nibabel