NA-MIC MGH Core 1

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Note that MGH is the lead site in the morphometry testbed of the Biomedical Informatics Research Network (BIRN) and also a site in the functional BIRN (fBIN).

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<tr>
<th>Faculty</th>
<th>Engineering</th>
<th>Postdocs</th>
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<tr>
<td>Bruce Fischl (BIRN/NA-MIC)</td>
<td>Dennis Jen (NA-MIC)</td>
<td>Lilla Zollei</td>
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<td>Randy Gollub (BIRN/NA-MIC)</td>
<td>Kevin Teich (BIRN)</td>
<td>Gheorghe Postelnicu</td>
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<td>Dave Kennedy (BIRN/NA-MIC)</td>
<td>Nick Schmansky (BIRN)</td>
<td>Anastasia Yendiki</td>
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<td>Karl Helmer (mBIRN)</td>
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<td>Doug Greve (BIRN)</td>
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1. Integration of FreeSurfer and Slicer.
   ability to render any of the models/measures generated in FreeSurfer (>2500 licenses distributed)

2. Training courses.
   4 courses run (22, 21, 24 and 50 attendees) in collaboration with Randy Gollub, Steve Pieper, Sonia Pujol, Katie Hayes, Jenni Pacheco and Doug Greve.

3. POIstats tool for constrained tractography.
   An MCMC algorithm with replica exchange for computing the most probable path between two ROIs.

4. Tools for aligning histological images with MRI ones.

5. Development and training for the fBIRN DBP.
FreeSurfer/Slicer Integration

In collaboration with Randy Gollub, Kevin Teich, Wendy Plesniak, Nicole Aucoin and Steve Pieper
POIstats*

*Manuscript in preparation – will be contributed to iTK in first quarter ’07. Joint work with Dave Tuch, Karl Helmer, David Salat, Vasanth Pappu, H. Diana Rosas and Dennis Jen
What MGH gets from NA-MIC

1. Integration of FreeSurfer and Slicer!

2. Open sourcing of FreeSurfer.

3. Industrial strength engineering expertise.
   - 407 unit tests
   - 64 system tests
   - nightly builds/tests on an array of platforms
   - integration of the Doxygen documentation system.

4. ITK support.


Peng Yu, P. Ellen Grant, Yuan Qi, Xiao Han, Florent Segonne, Rudolph Pienaar, Evelina Busa, Jenni Pacheco, Nikos Makris, Randy L. Buckner, Polina Golland, Bruce Fischl, Cortical Surface Shape Analysis Based on Spherical Wavelets, IEEE Transaction on Medical Imaging (to be published in the special issue on computational neuroanatomy).

Florent Segonne, Jenni Pacheco, Bruce Fischl, Geometrically Accurate Topology Correction of Cortical Surfaces using Non-Separating Loops, IEEE Transaction on Medical Imaging (to be published in the special issue on computational neuroanatomy).

Manoach DS, Ketwaroo AG, Polli FE, Thakkar KN, Barton JJS, Goff DC, Tuch DS. Reduced integrity of the anterior cingulum bundle is associated with saccadic latency in schizophrenia. 2007 (under revision)


Whitcher B, Wisco JJ, Hadjikhani N, Tuch DS. Statistical group comparison of diffusion tensors via multivariate hypothesis testing. 2007 (under revision)

Whitcher B, Tuch DS, Wisco JJ, Sorensen AG, Wang L. Using the wild bootstrap to quantify the uncertainty in DTI. 2007 (under revision)