



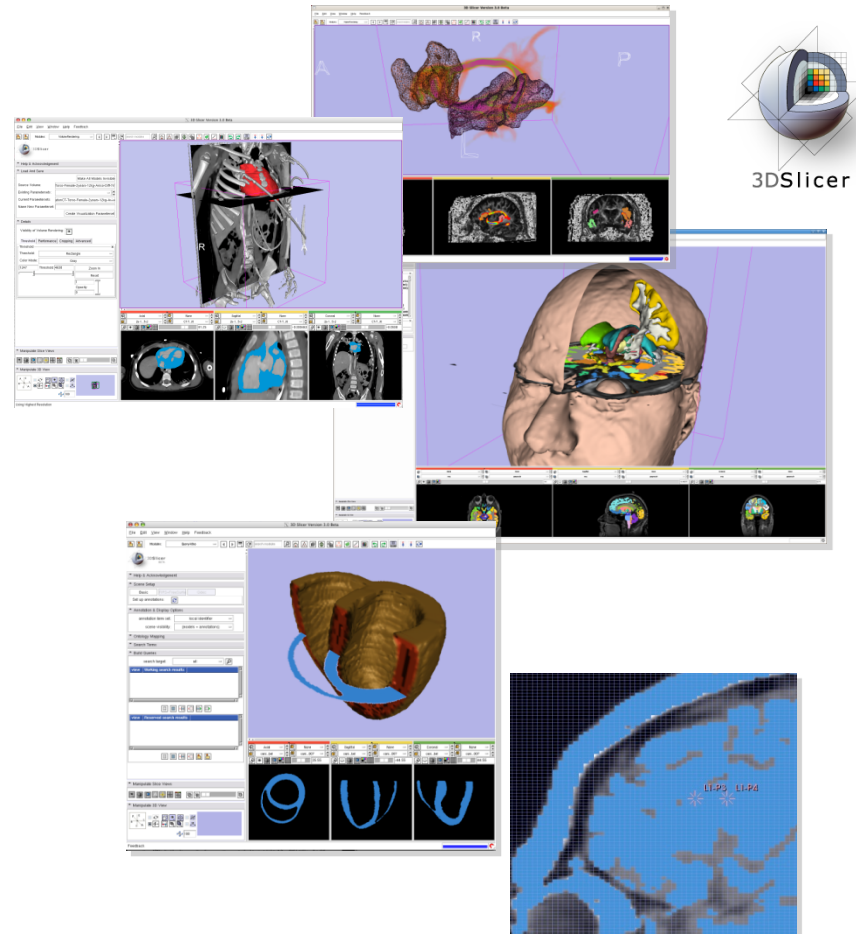
NA-MIC

National Alliance for Medical Image Computing

<http://na-mic.org>

# NA-MIC

Motivations and  
Ongoing Development





# Overall Goals

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- Why Medical Research?
  - To Help Patients!





# NA-MIC Approach

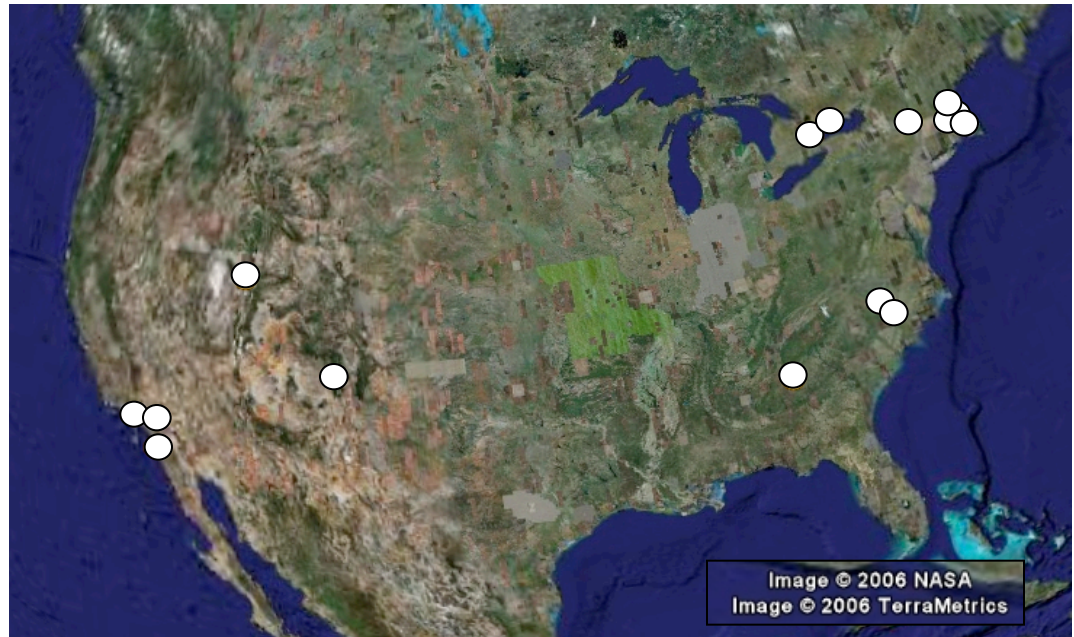
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- Belief in Computation to Improve Clinical Effectiveness
- Community of Like-Minded Researchers
  - Algorithm Developers
  - Systems Engineers
  - Computational/Biological Scientists
- Dedicated to Openness and Reproducible Science
  - Open Source Software
  - Open Data
  - Open Development Processes
- Activities Aim to Create Coordinated Community



# NA-MIC: A Network of Peers

- Leadership:
  - BWH: Ron Kikinis, (Overall PI)
- Core 1 Algorithms
  - Utah: Ross Whitaker (Core 1 PI), Guido Gerig
  - MIT: Polina Golland
  - UNC: Martin Styner
  - MGH: Bruce Fischl, Dave Kennedy
  - GaTech: Allen Tannenbaum
- Core 2 Engineering
  - Kitware: Will Schroeder (Core 2 PI)
  - GE: Jim Miller
  - Isomics: Steve Pieper
  - UCSD: Mark Ellisman
  - UCLA: Art Toga
  - WashU: Dan Marcus
- Core 3 DBP 2004-2007
  - BWH: Martha Shenton
  - Dartmouth: Andy Saykin
  - UCI: Steve Potkin
  - UofT: Jim Kennedy
- DBP 2007
  - UNC: H. Cody
  - BWH: M. Kubicki
  - Mind Institute: J. Bockolt
  - Queens University: G. Fichtinger
- Core 4 Service
  - Kitware: Will Schroeder
- Core 5 Training
  - MGH: Randy Gollub
- Core 6 Dissemination
  - Isomics: Steve Pieper, Tina Kapur
- Core 7 Management
  - BWH: S. Manandhar





# Community Involvement

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- Daily – e-mail, dashboards, wikis
- Weekly – telephone conferences
- Periodic – architecture reviews, workshops
- Semi-annual– Programmer/Project Weeks
- Yearly – All Hands Meeting



# NA-MIC Project Weeks

- Twice Yearly Since June 2005
- June 22-26, 2009
  - 125 Participants
  - 71 Projects
  - Hands On Software Development
  - GE, Siemens, INRIA, Kitware, Harvard, MIT, UNC, UCLA, NCI...
- Upcoming: January 4-8, 2010
  - Salt Lake City, Utah
  - Open Attendance





# Dissemination and Training

- National and International Events
  - MIT, MGH, UNC, EPFL, NIH, UNM, UCSD...
- All Materials on Wiki
- Project Weeks
  - Full Week Each Summer
  - ½ Week at Winter AHM
- Workshops
  - MICCAI 2005, 2006, 2007, 2008..
  - OHBM, RSNA, Munich, NCI...





# NAMIC Training Portfolio

- <http://slicer.org>



Slicer3.4: Training

CONTENTS [page]

- 1 Slicer 3.4 Tutorials
- 2 Slicer Tutorial Content
- 3 Software Installation
- 4 Software Documentation
- 5 Older Tutorials

Slicer 3.4 Tutorials

The following table contains "How to" tutorials with matched sample data sets. They demonstrate how to use the 3D Slicer environment (version 3.4) to accomplish certain tasks.

Category	Tutorial	Sample Data
Basic	<b>Slicer3Minute Tutorial</b> The Slicer3Minute tutorial is an introduction to the advanced 3D visualization capabilities of Slicer3.4. Audience: First time users.	Slicer3Minute dataset The Slicer3Minute dataset contains an MR scan of the brain and 3D reconstructions of the anatomy.
Core	<b>Slicer3Visualization Tutorial</b> The Slicer3Visualization tutorial guides through 3D data loading and visualization in Slicer3.4. Audience: All beginning users including clinicians, scientists, engineers and programmers.	Slicer3Visualization dataset The Slicer3VisualizationDataset contains two MR scans of the brain, a pre-computed labelmap and 3D reconstructions of the anatomy.
Core	<b>Programming in Slicer3 Tutorial</b> The Programming in Slicer3 tutorial is an introduction to the the integration of stand-alone programs outside of the Slicer3 source tree. Audience: Programmers and Engineers.	HelloWorld Plugin The HelloWorld tutorial dataset contains an MR scan of the brain and pre-compiled (oml) and C++ files for integrating the HelloWorld plugin to Slicer3.
Specialized	<b>3D Visualization of FreeSurfer Data</b> The course guides through 3D visualization of FreeSurfer brain segmentations, surface reconstruction and parcellation results in Slicer3.4. Audience: All users.	FreeSurfer Tutorial dataset The FreeSurfer dataset contains an MR scan of the brain and pre-computed FreeSurfer segmentation and cortical surface reconstructions.
Specialized	<b>Automatic Segmentation Tutorial</b> The course guides through the process of using the Expectation-Maximization Segmentation algorithm to automatically segment brain structures from MRI data. Audience: Programmers and Engineers.	Automatic Segmentation dataset





# Active Development

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- Insight Software (ITK)
  - Hundreds of Fundamental Imaging Algorithms
  - Rapidly Expanding, Careful Quality Control
- Visualization Toolkit (VTK)
  - Hardware Accelerated Graphics, Interaction Widgets
- XNAT
  - Image Database & Archive for Research
  - Becoming Widely Deployed, Integrated with Slicer
- 3D Slicer
  - New User Interface in Development
  - Additional fMRI Tools Through Interoperability with Neuroimaging Python (NIPY) Effort
  - Many New Application-Specific Modules Becoming Available



# Getting Involved

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- Winter Project Week 2010
  - January 4-8, Salt Lake City, UT
- Summer Project Week 2010
  - June at MIT Stata Center, Cambridge MA
- Collaborations PAR-05-063
  - 8 Active R01/R21 Collaborations with NA-MIC on topics including Neuroscience, Orthopedics, Image Guided Therapy..
  - <http://www.na-mic.org/Wiki/index.php/Collaborator:Resources>



# More Information

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- NA-MIC wiki:  
<http://wiki.na-mic.org>
- 3D Slicer  
<http://www.slicer.org>