

## Neuroimaging Informatics Tools and Resources Clearinghouse (NITRC) Resource Announcement

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### Introduction

In an effort to promote the enhancement, adoption, distribution, and evolution of neuroimaging informatics tools and resources, the National Institutes of Health (NIH) Blueprint for Neuroscience Research has launched the Neuroimaging Informatics Tools and Resources Clearinghouse (NITRC) available at <http://www.nitrc.org/>. The NIH Blueprint for Neuroscience Research is a cooperative effort among the NIH Office of the Director and 15 NIH Institutes and Centers that support neuroscience research.

“The goal of the NIH Blueprint for Neuroscience Research is to provide scientists with new tools, resources, and training opportunities through collaborations and pooled resources,” said NIH Director Elias A. Zerhouni, M.D. in the initial press release for NITRC. “By building upon significant investments already made in the informat-

ics area, the Neuroimaging Informatics Tools and Resources Clearinghouse will provide a coordinated, coherent resource for the neuroimaging research community.” A discussion of the broad spectrum of NIH Neuroinformatics offerings was provided in (Huerta et al. 2006).

Building upon prior tool registry experience (Kennedy and Haselgrove 2006), NITRC was designed to facilitate the adoption of tools and resources by providing access, information, and forums to enable interaction between the resource–user community and associated resource developers. Many neuroimaging tools and databases are underutilized because they are neither user-friendly nor easily adoptable and are very often not well documented or advertised. NITRC facilitates finding and comparing neuroimaging resources for functional magnetic resonance imaging (fMRI) and related structural analyses—including popular tools as well as those that only a few researchers are utilizing. Currently there are ninety-seven tools posted on NITRC, and this number increases weekly. NITRC collects standardized information about tools, making the task of finding and comparing resources very easy for the user. For example, information on development status, topic, intended audience, operating system, and several other categories are displayed for most tools. This information will assist researchers in finding the right fMRI tool or resource that will support their work.

NITRC users also have a role in improving the tools available on the Web site. NITRC provides ongoing opportunities for public comment and reviews regarding particular neuroimaging informatics tools and resources in order to guide development and enhance their use by the neuroimaging research community. NITRC also provides a supportive venue for community-based projects and collaboration among research laboratories and universities, and offers several community features, such as forums, that

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NITRC technical support: Visit [http://www.nitrc.org/help/contact\\_us.php](http://www.nitrc.org/help/contact_us.php) or contact the NITRC moderator at [moderator@nitrc.org](mailto:moderator@nitrc.org)

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allow researchers to communicate with each other. This community input ranges from posting and answering “simple” questions such as “What is your preferred tool/resource for...,” to providing full project-level support for questions of fundamental importance to the functional and structural imaging community, such as best practices for functional connectivity and resting state analyses.

NITRC also offers a venue for software and resource developers to obtain community input. This feedback can be used to improve tools to make them more usable, accessible, and user friendly. As more and more tools become available to the community, it can be expected that “usability” (in terms of ease of installation and sufficiency of documentation) will become one of the most important factors influencing tools and resource selection. By actively promoting usability, through infrastructure, best practices, and community feedback, NITRC will play an important role in accelerating the advancement of the analytic capabilities available to neuroscience researchers the world over.

NITRC facilitates collaboration and education by providing the means to deploy fMRI tools and resources. A concise and simple rating and review system allows users to choose tools and the comparison matrices offer a method to compare features and functions of tool and resource. A collaborative environment is provided for enhancing NITRC’s controlled description vocabulary for easy searching and comparison. The following are a few examples of NITRC functionality.

- User Functionality
  - Select among neuroimaging tools
  - Use a rating system
  - View statistics on download, rating, reviews, overall ease of use
  - View comparative matrices of tools
  - Secure license information, tutorials, documentation
  - Check for updates, access old versions and data sets
  - Monitor bugs and feature sets
  - Discuss tools/resources in forums
- Developer Functionality
  - Register and categorize tools
  - Publish detailed and summary descriptions
  - Easily provide new releases
  - Provide documentation and tutorials

- Provide data sets
- Receive automated interactions through Web services
- Receive and track bug and feature requests

On October 1, 2007, the NIH awarded grants to support the modification and enhancement of existing neuroimaging informatics tools and resources that are hosted or being considered for inclusion in the NITRC. The supplemental funding is expected to lead to significant improvements in the interoperability and adaptability of neuroimaging informatics tools and resources and result in enhanced dissemination, adoption, and evolution of such tools and resources by the broader neuroimaging research community. A total of \$2 million was awarded to 21 investigators as part of this supplemental initiative. Supplements are still being awarded for 2008. The program announcements supporting this funding can be found at <http://www.nitrc.org/plugins/wiki/index.php?id=6&type=g> and are in effect for total of 5 years.

Members of the neuroimaging community are encouraged to take advantage of NITRC, as both tool/resource developers and as active users. With the dynamic content available on NITRC and the addition of new tools every week, users should check the site frequently for new information. Not only can users turn to NITRC to search for and download a tool, they can use it for many other purposes including finding information on upcoming conferences, identifying available funding opportunities, and reading exciting dialogue in a particular community discussion group. In short, NITRC makes a concerted effort to reduce the many barriers to effective tool and resource sharing (Kennedy 2004). Visit <http://www.nitrc.org/> now to see the wealth of resources the Neuroimaging Informatics Tools and Resources Clearinghouse has to offer.

## References

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