

Step by Step Tutorials for BrainNet Viewer

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File list of this tutorials

- Net.mat
 - A resting-state functional network generated using the AAL90 template, including three variables:
 - Net – a 90 x 90 matrix, indicating the weighted brain network connectivity matrix
 - Degree – a 90 x 1 vector, indicating the nodal degree (strength) of the nodes
 - Ci – a 90 x 1 vector, indicating the community or module index of the nodes
- Practice.node
 - An example of node file
- Practice.edge
 - An example of edge file
- Practice1.mat
 - Pre-saved configuration for network drawing
- Practice2.mat
 - Pre-saved configuration for volume mapping
- zFCS
 - Normalized strength map of a voxel based brain network
- OneSample_ROI11_NC
 - A statistical map generated from one sample t test on seed-based functional connectivity
- aal.nii
 - The AAL parcellation atlas (*Tzourio-Mazoyer et al., 2002 Neuroimage*)

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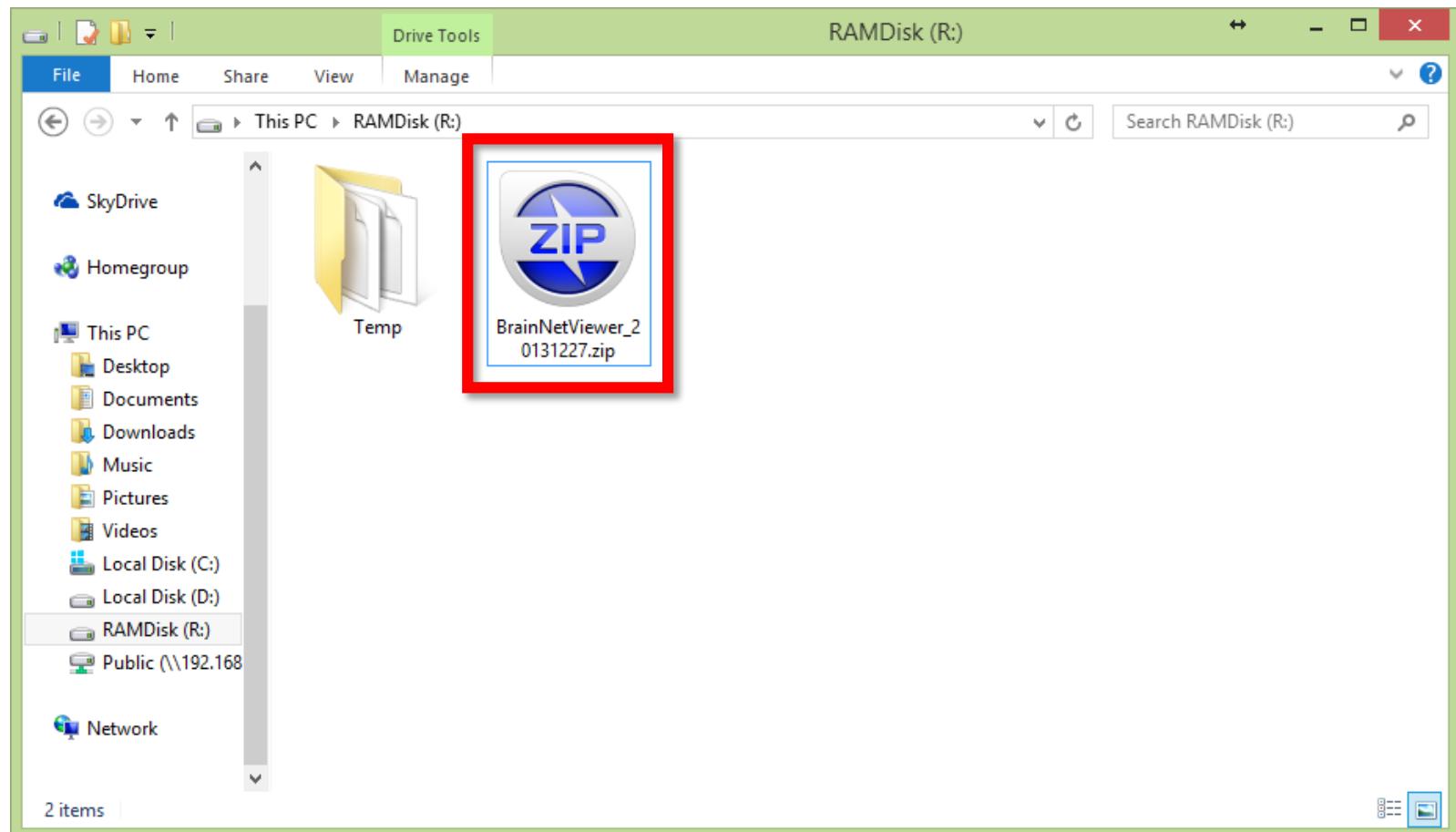
Download Website

Download Site: <http://www.nitrc.org/projects/bnv/>
Contact: mingruixia@gmail.com

The screenshot shows the NITRC website interface with the following details:

- Header:** The title bar says "NITRC: BrainNet Viewer". The address bar shows the URL "www.nitrc.org/projects/bnv/". The menu bar includes "Home", "Tools & Resources" (which is highlighted in yellow), "Community", "Support", and "About NITRC".
- Left Sidebar:** A vertical sidebar with links: Summary, Reviews/Ratings, Support, Advanced Search, Docs, Downloads, Forums, Mailing Lists, MediaWiki, News, Source Code, Surveys, Tasks, and Tracker.
- Project Overview:** The main content area is for the "BrainNet Viewer" project. It includes:
 - A brief description: "BrainNet Viewer is a brain network visualization tool, which can help researchers to visualize structural and functional connectivity patterns from different levels in a quick, easy, and flexible way."
 - A prominent yellow button with a download icon labeled "Download Now". This button is highlighted with a red rectangular box.
 - A dropdown menu next to the download button showing "BrainNet Viewer 1.43 Released 20131227: BrainNetViewer_201...".
 - A "See All Files" link.
 - A "Specifications" section with fields: Category (Visualization), License (GNU General Public License (GPL)), and Associations (works well with: METAlab Graph Theoretic GLM).
 - A "Recent Activity" section showing posts from "help forum":
 - RE: How can I visualize SPM8 results? posted by Hugo Botha on May 9
 - RE: How can I visualize SPM8 results? posted by Mingrui Xia on May 8
 - RE: How can I visualize SPM8 results? posted by Hugo Botha on May 8
- Right Sidebar:** Includes sections for "Reviews & Ratings" (User Reviews 1, Overall rating 4.5/5, Installation 4.5/5, Documentation 4.5/5), "Participate!" (Report issues, Add a review, Join the team, Monitor a file release, Subscribe to RSS feed, Bookmark this page), and various statistics: Home Page, View Images, Documents: 9, Forums: 74 messages in 2 forums, Mailing Lists: 1, News items: 0, Task Manager: 0 open / 0 total, Tracker: 1 open / 2 total, Total Downloads: 7314, Activity Percentile: 97.40%, View Statistics, Registered: Jul 7, 2011, Organization: Beijing Normal University.

Download A zip file

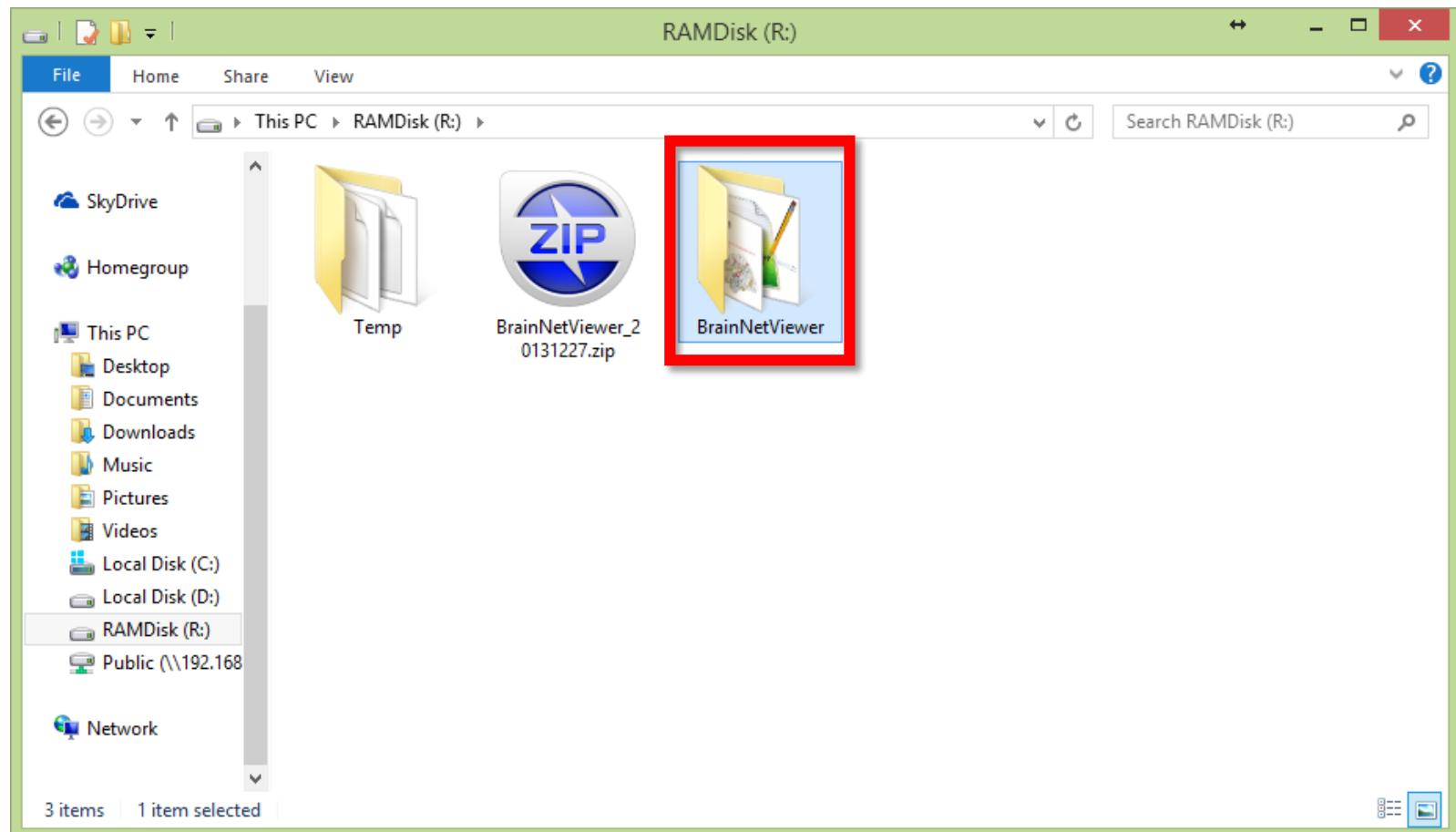


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Installation

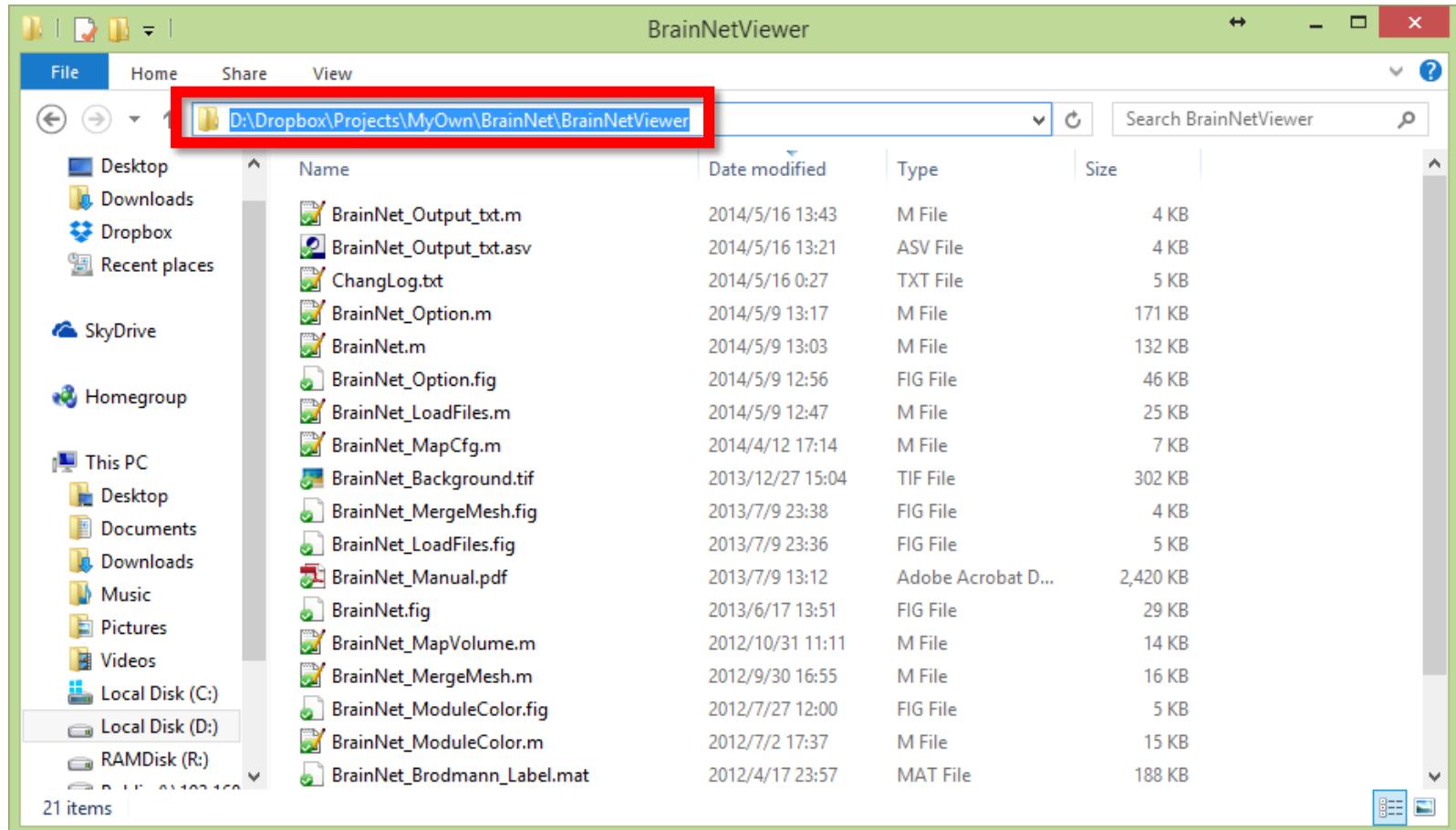
Unzip



Installation

Move to folder

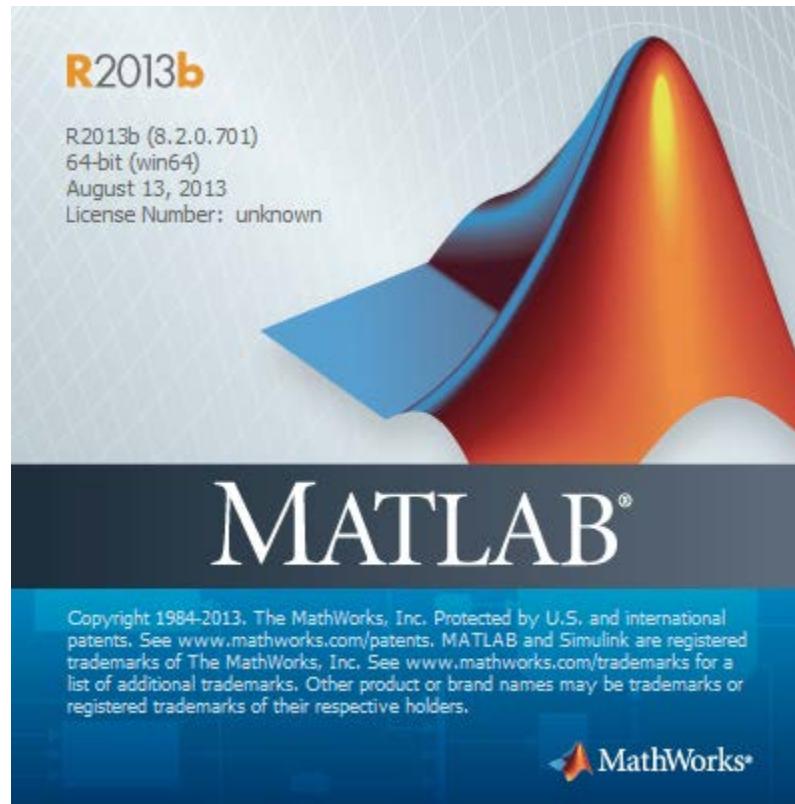
Note: any folder without blank or non-Latin letters in directory



Installation

Start Matlab

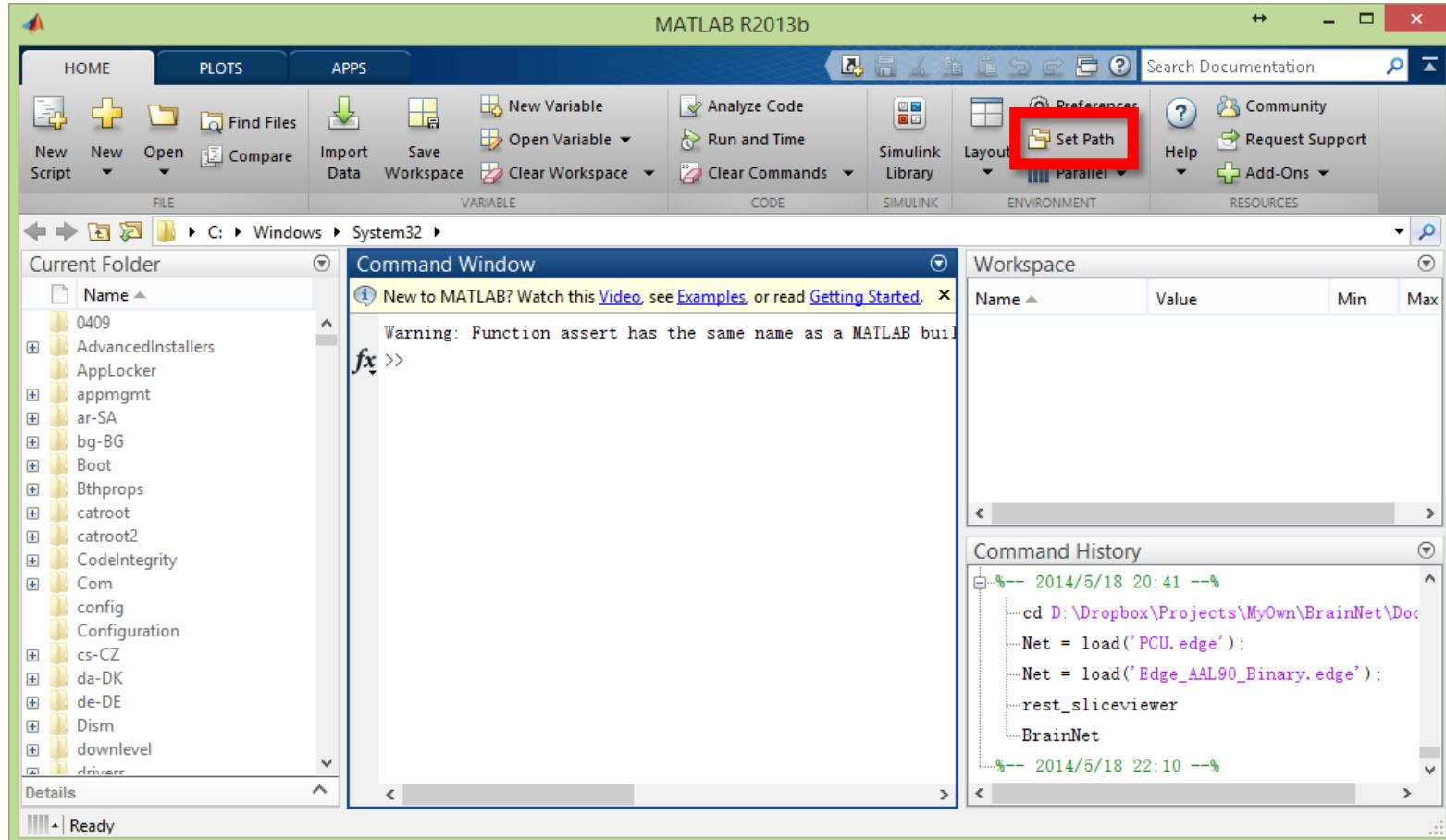
Note: Matlab version >= R2009a



Installation

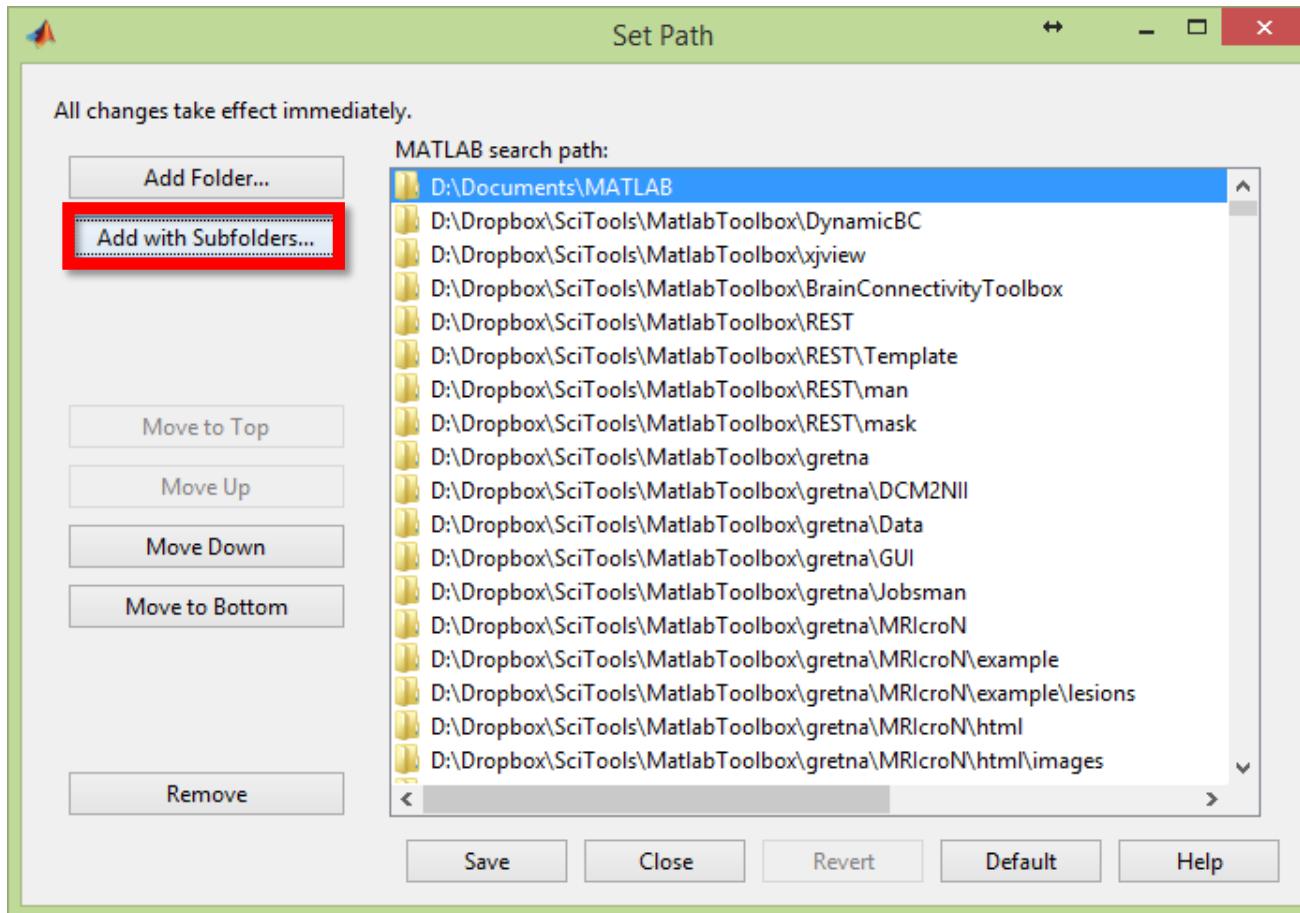
Set path in Matlab

Note: in lower version of Matlab: File -> Set Path



Installation

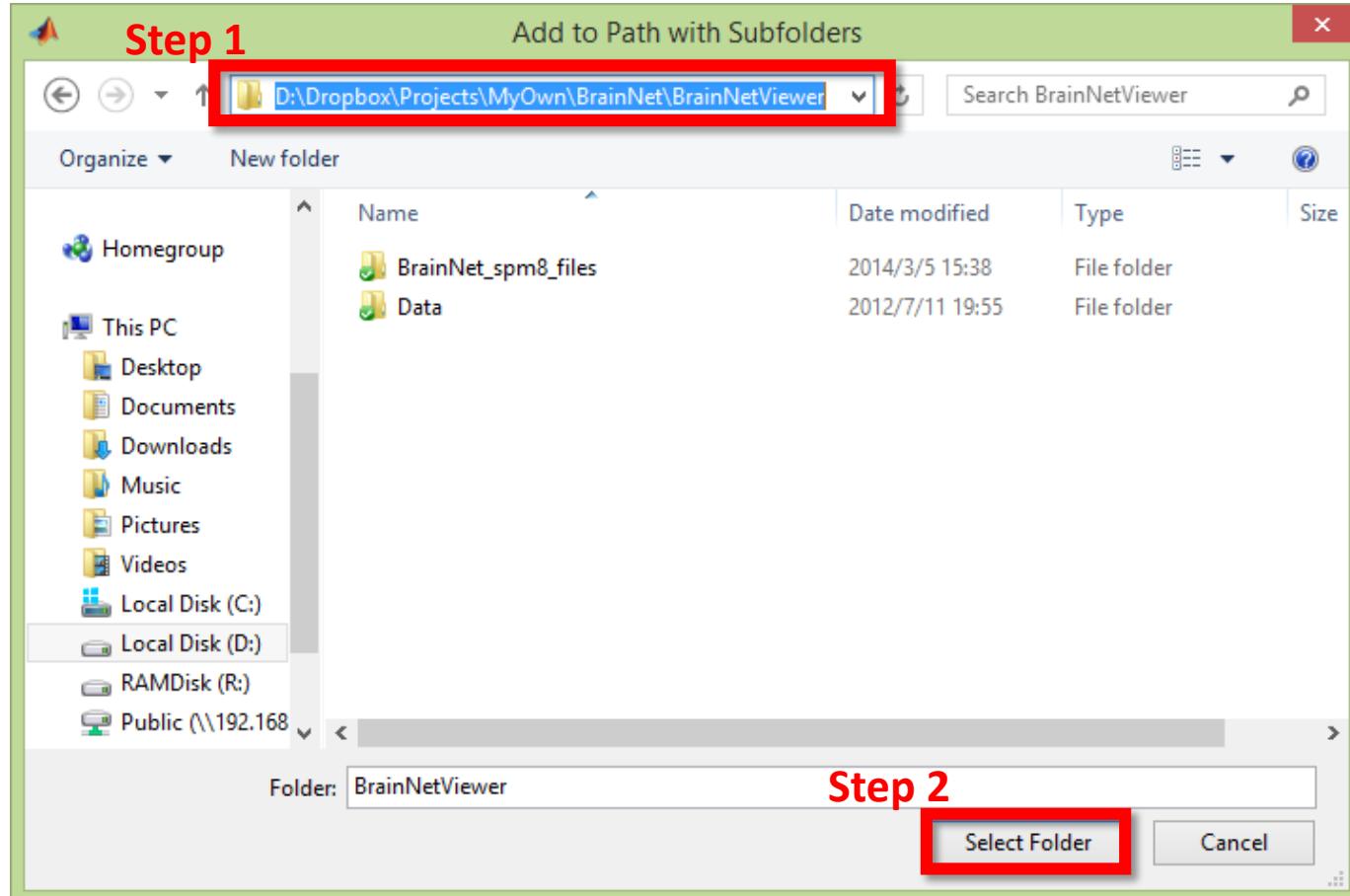
Set path in Matlab



Installation

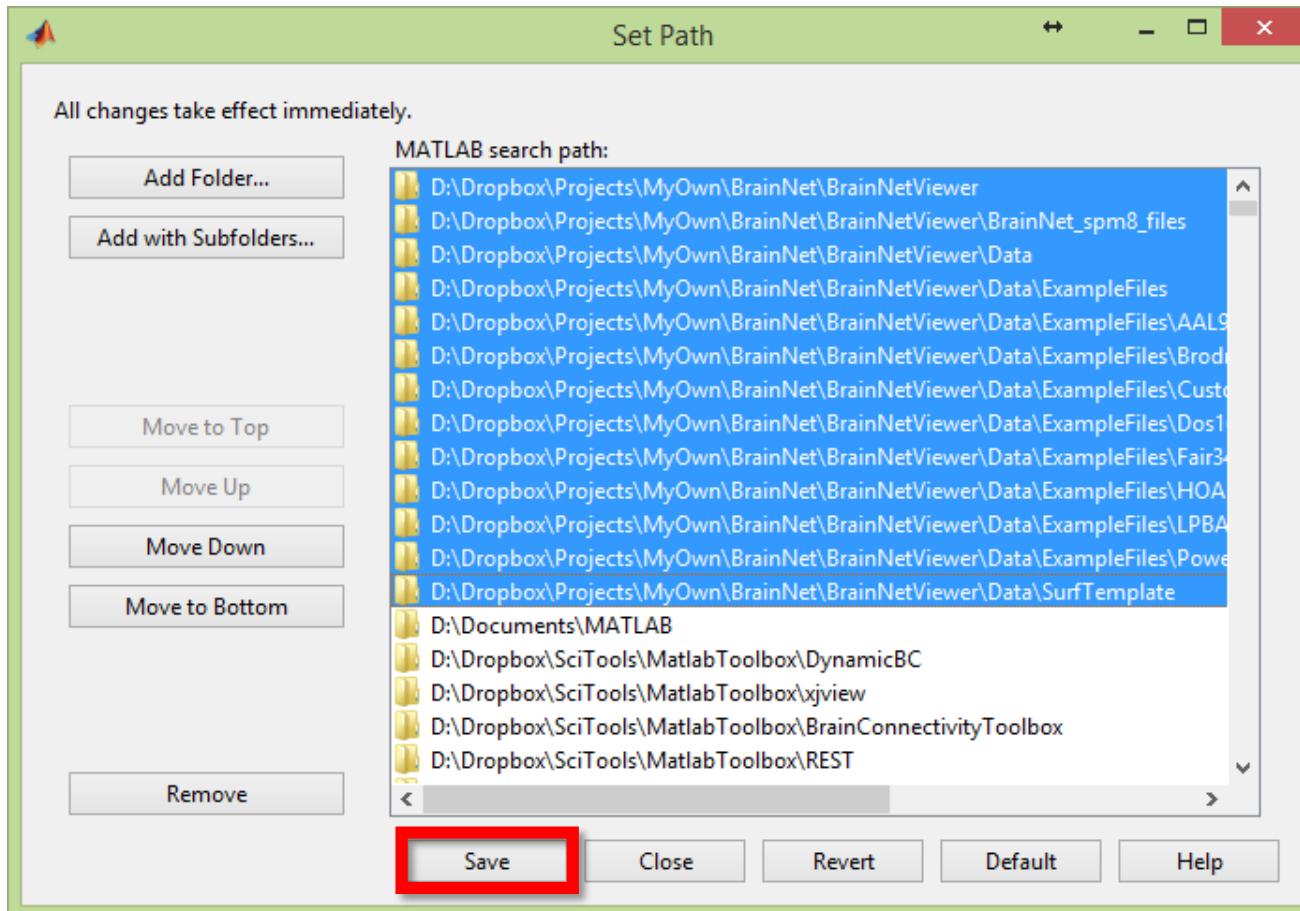
Set path in Matlab

Note: locate the folder where your BrainNet Viewer is in



Installation

Set path in Matlab



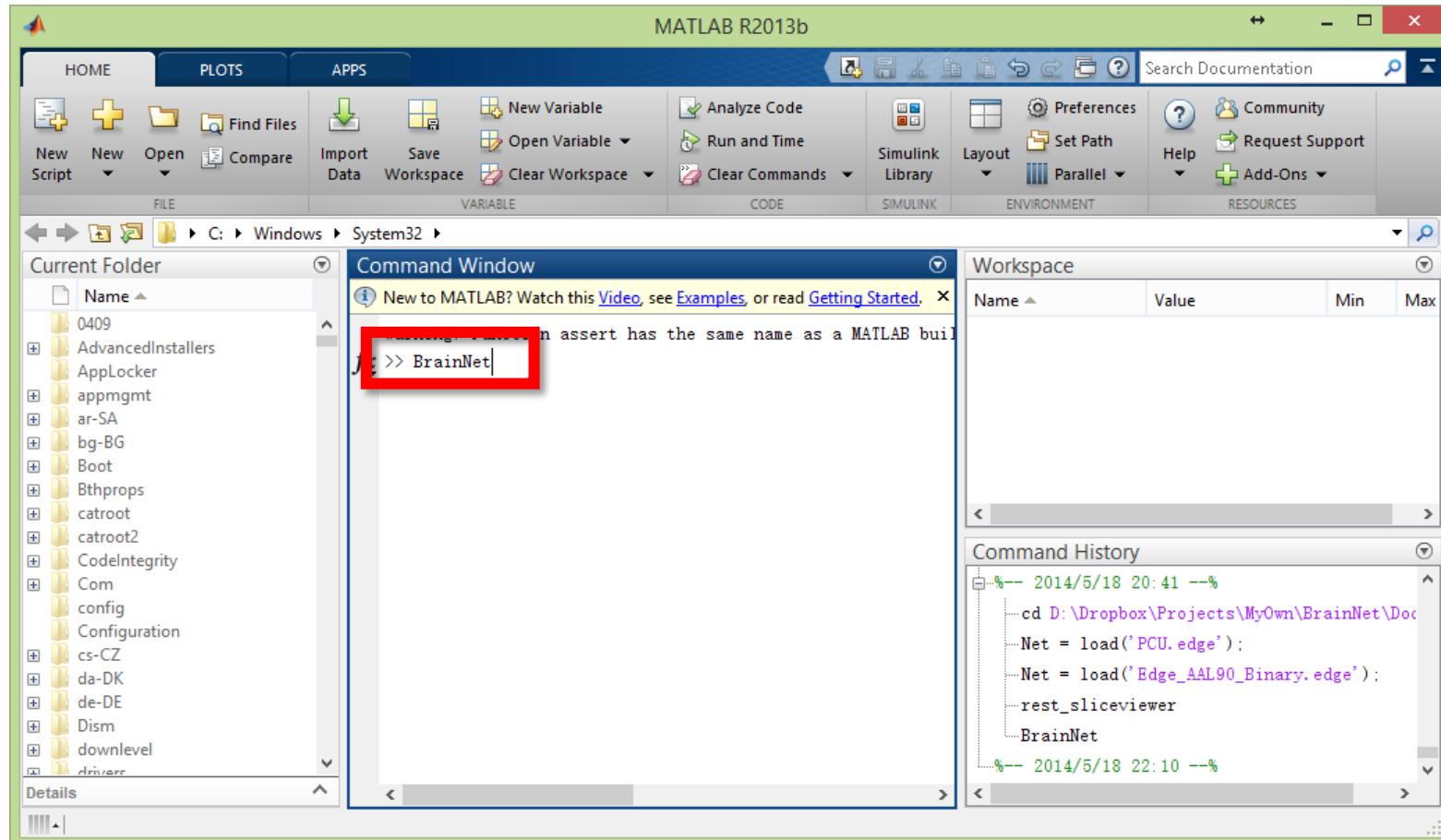
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Start BrainNet Viewer

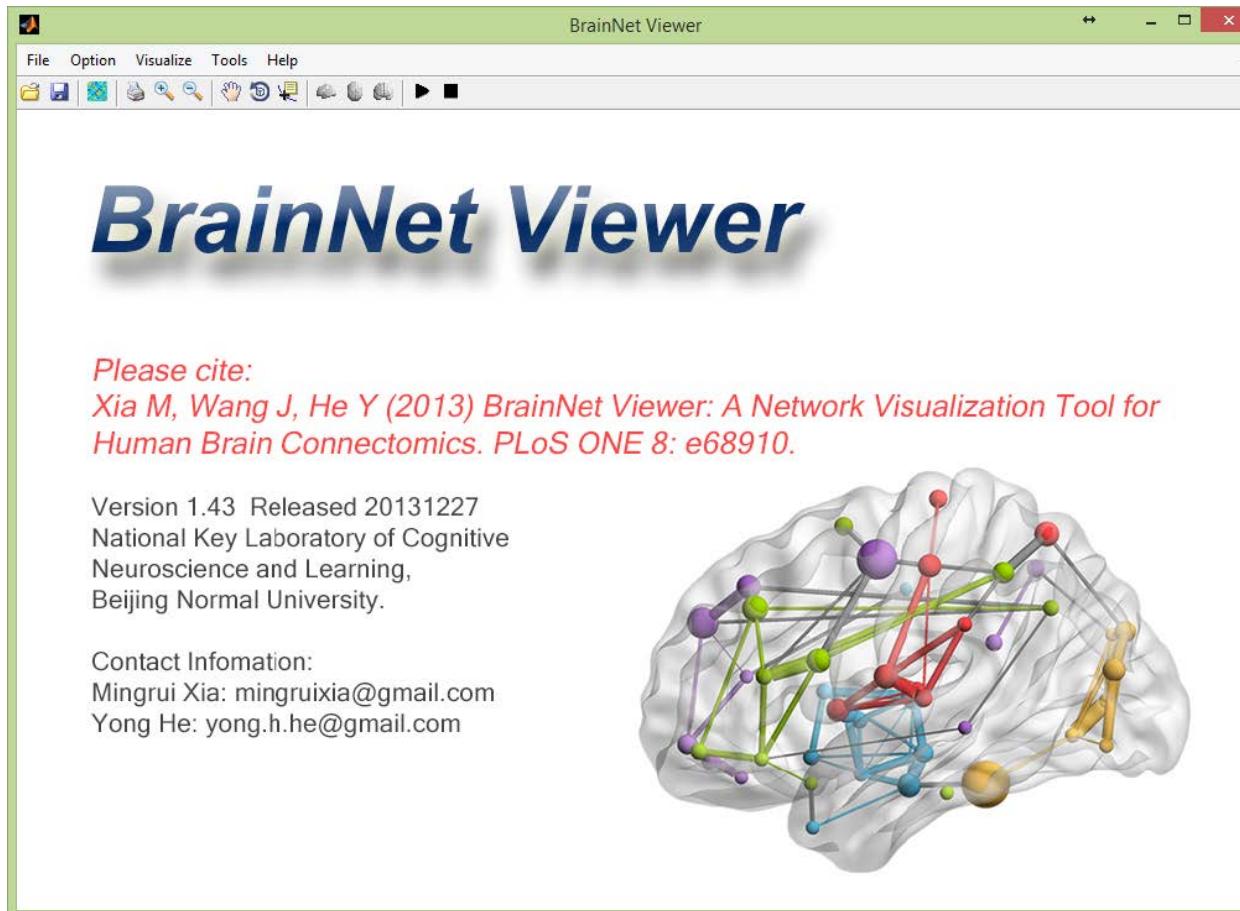
Type command

Note: type BrainNet in Command Window



Start BrainNet Viewer

Main window of BrainNet Viewer

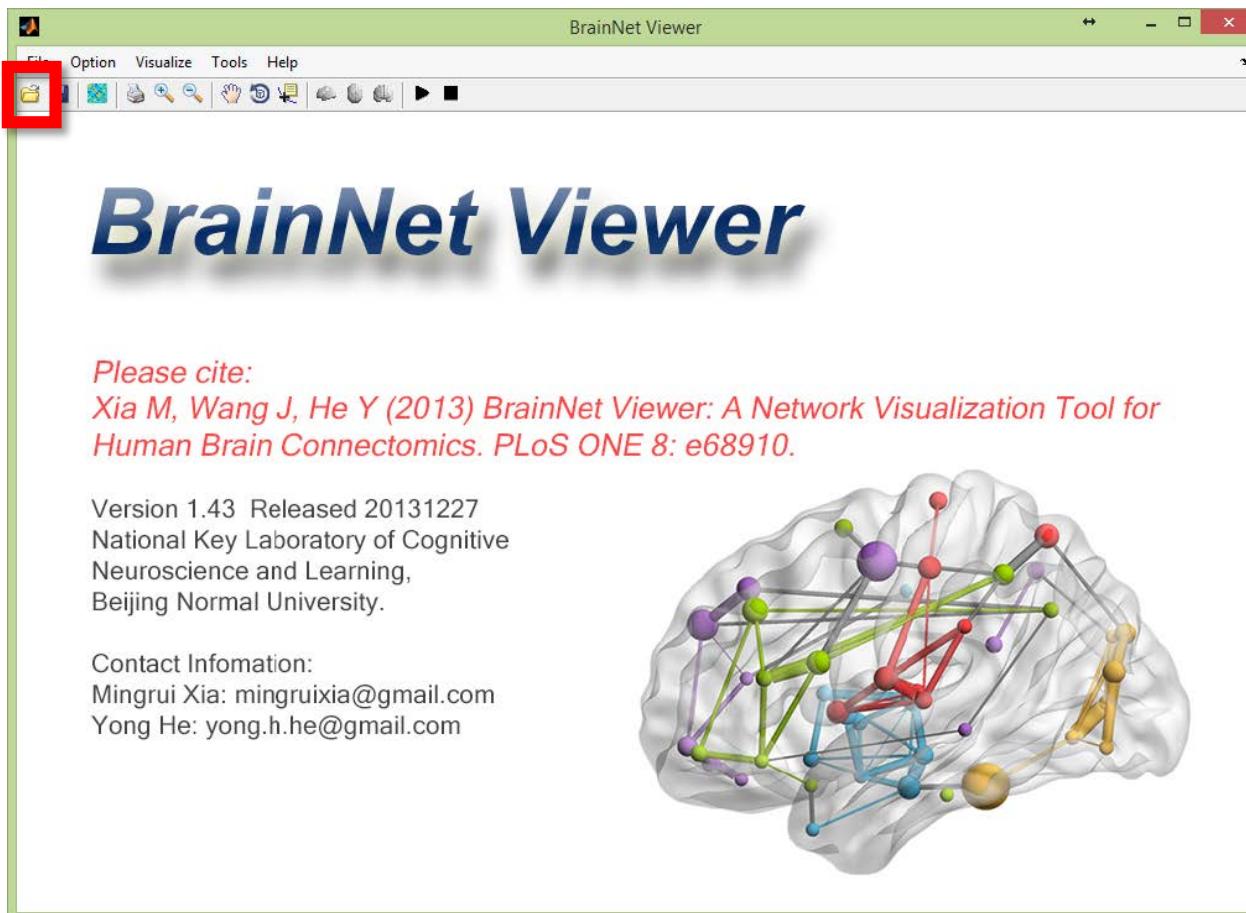


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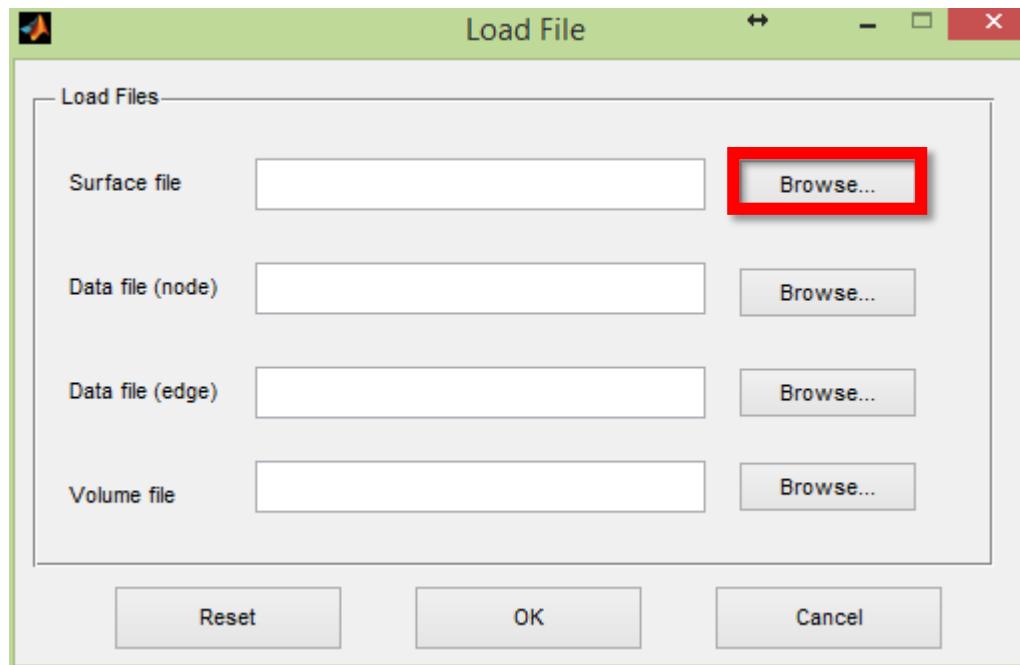
Example 1: Visualize brain surface

Load file



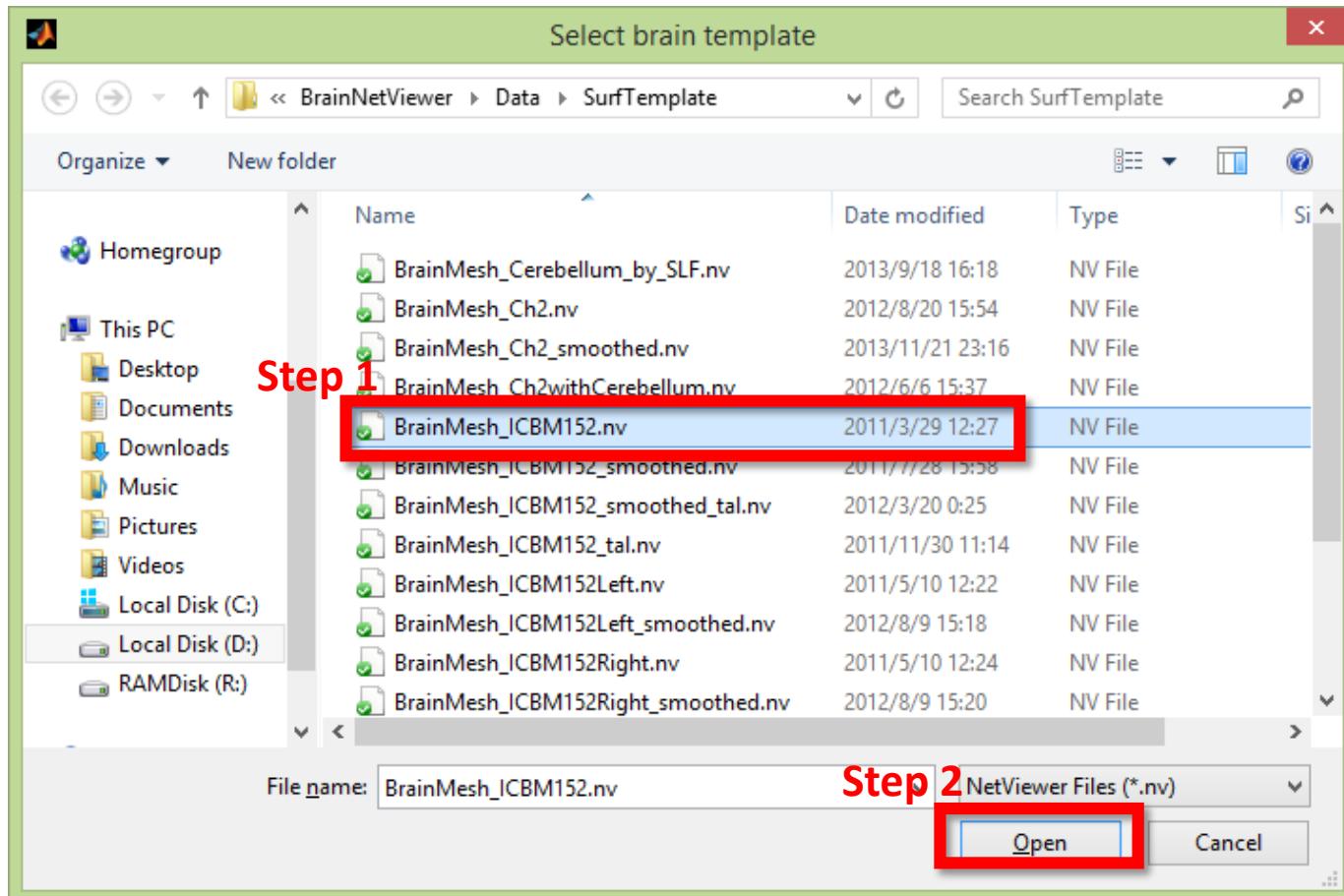
Example 1: Visualize brain surface

Load file



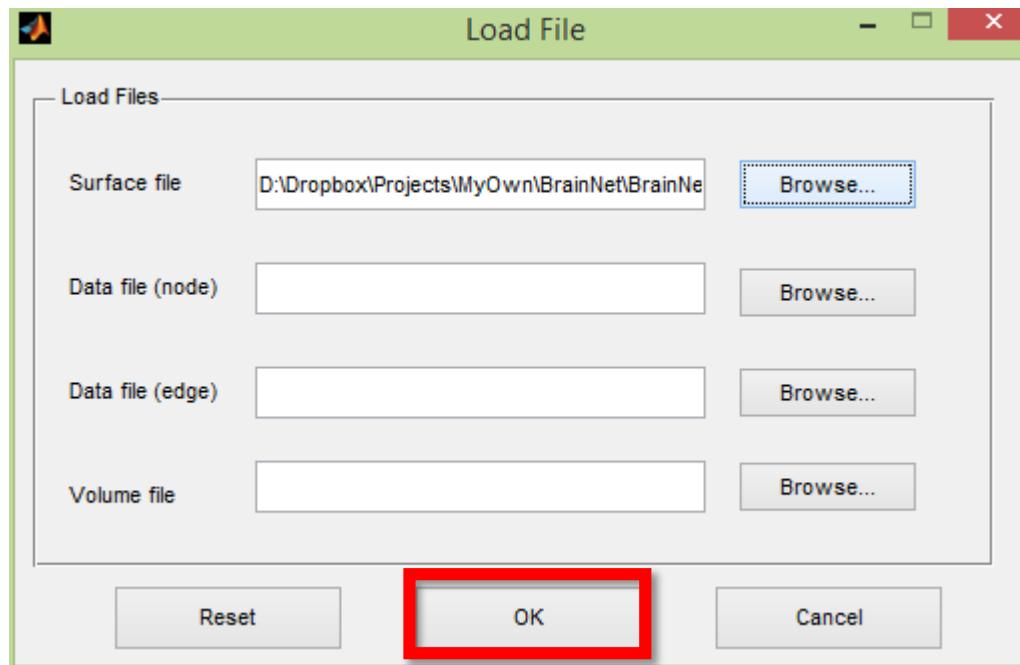
Example 1: Visualize brain surface

Load file



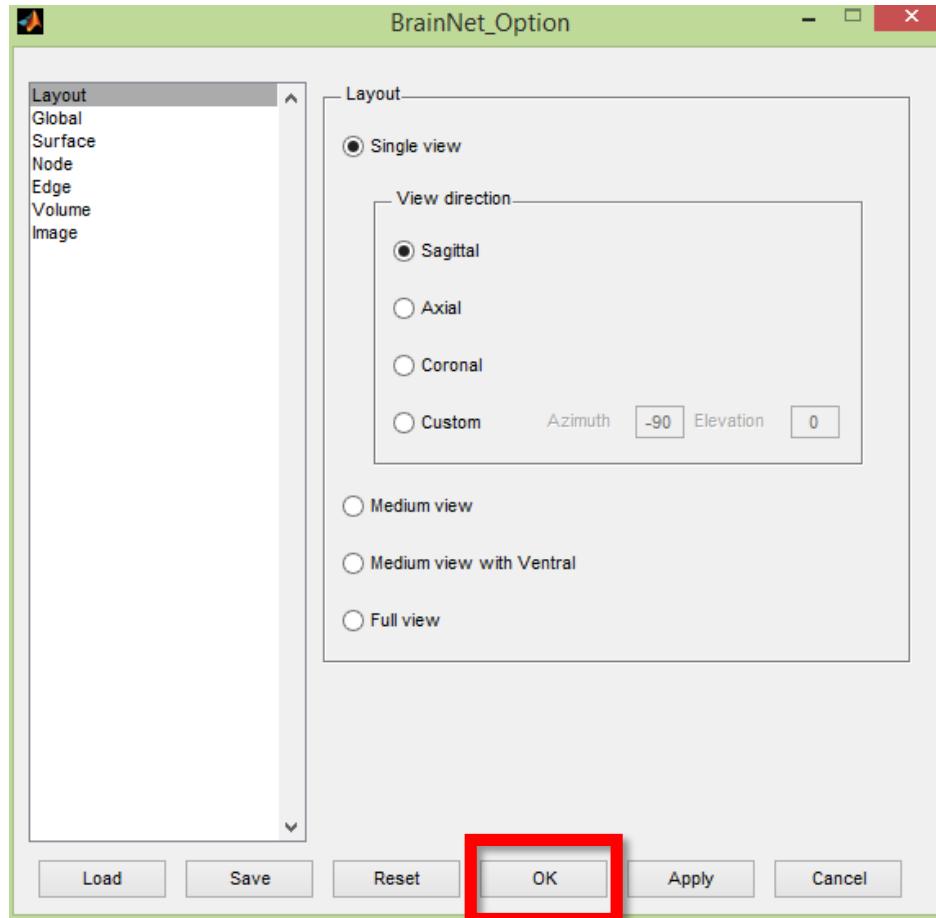
Example 1: Visualize brain surface

Load file



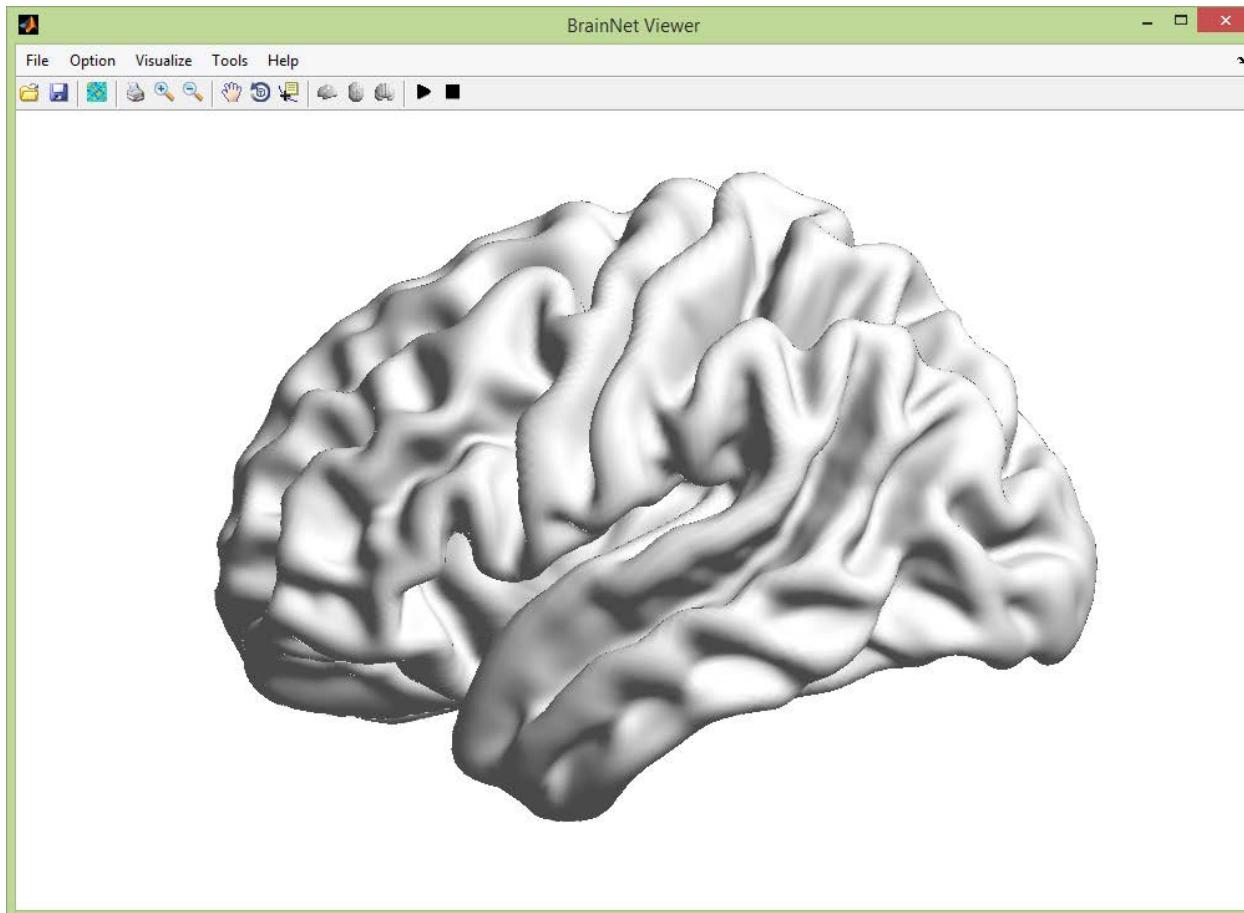
Example 1: Visualize brain surface Configuration

Note: take default for example



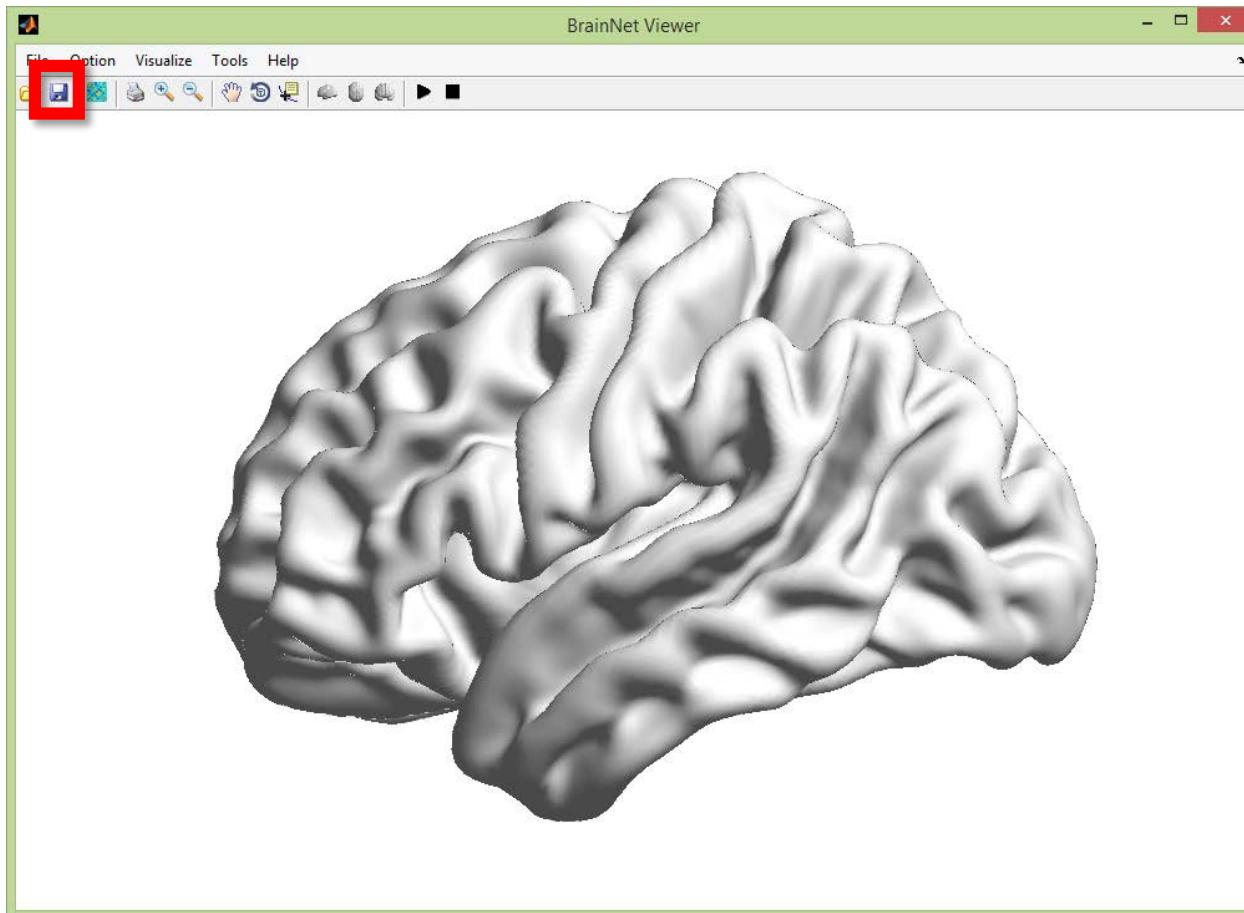
Example 1: Visualize brain surface

Figure drawing



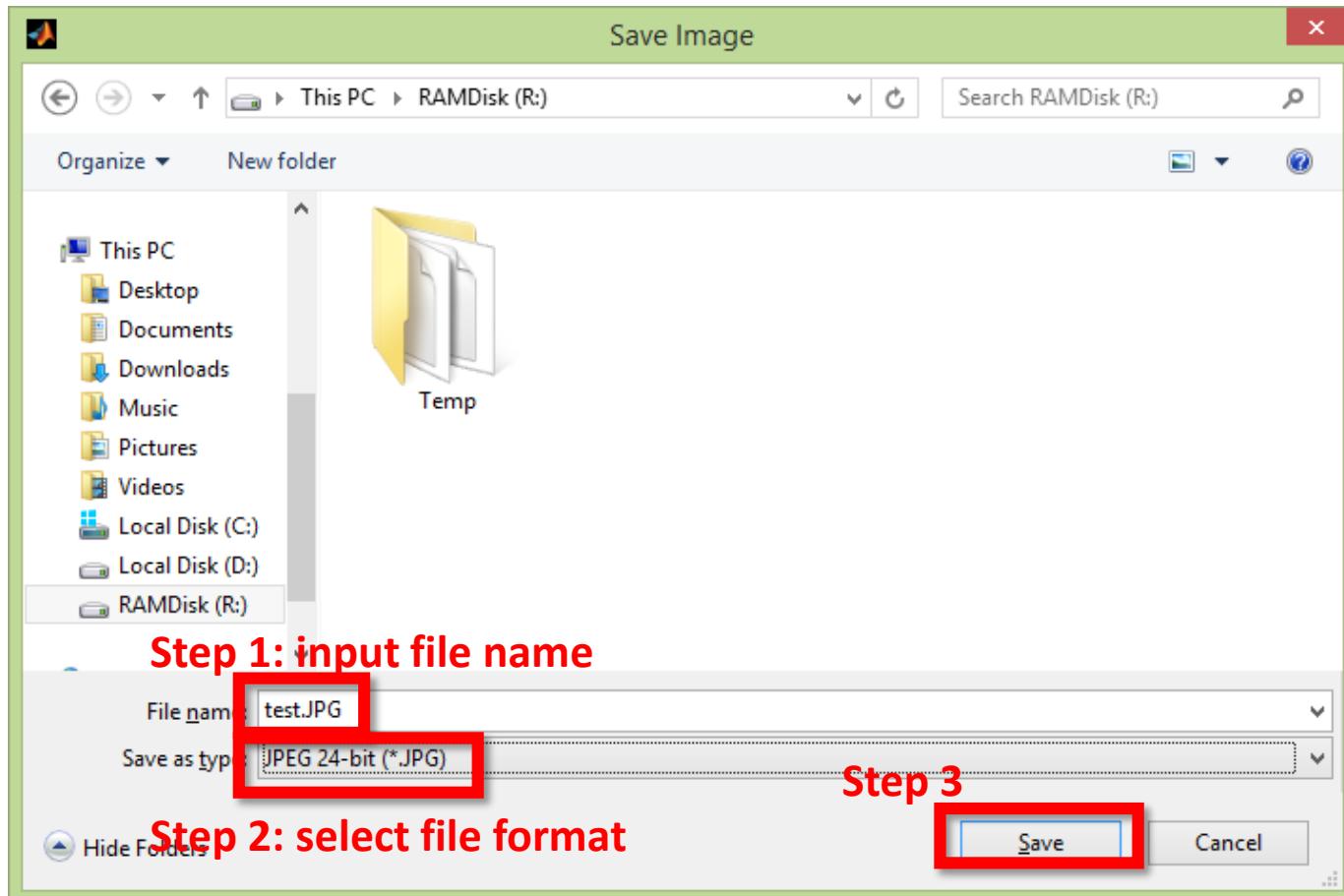
Example 1: Visualize brain surface

Save image



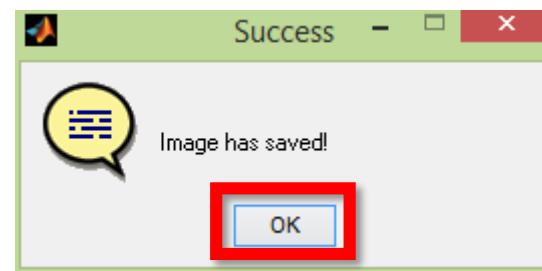
Example 1: Visualize brain surface

Save image



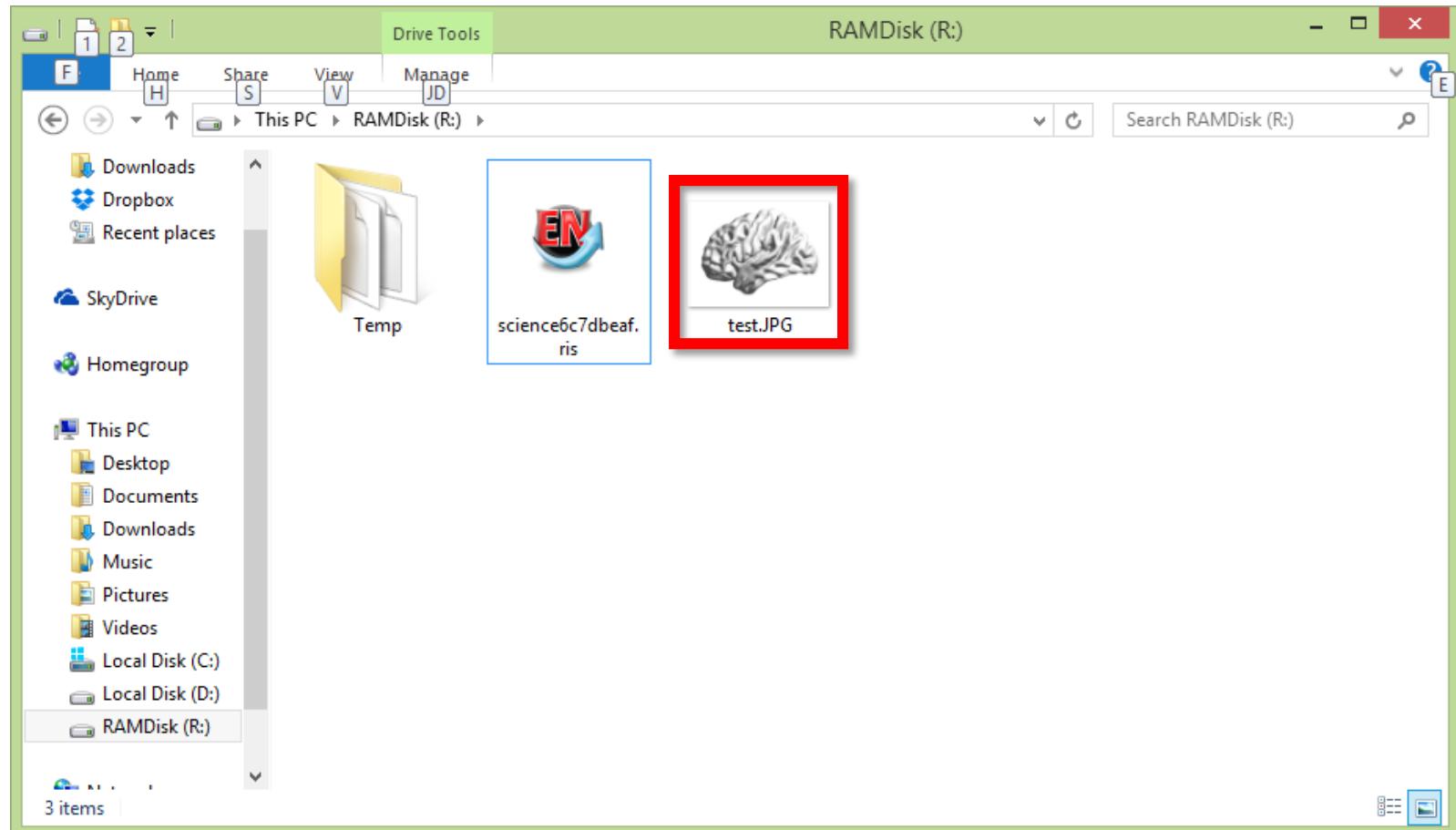
Example 1: Visualize brain surface

Save image



Example 1: Visualize brain surface

Saved image

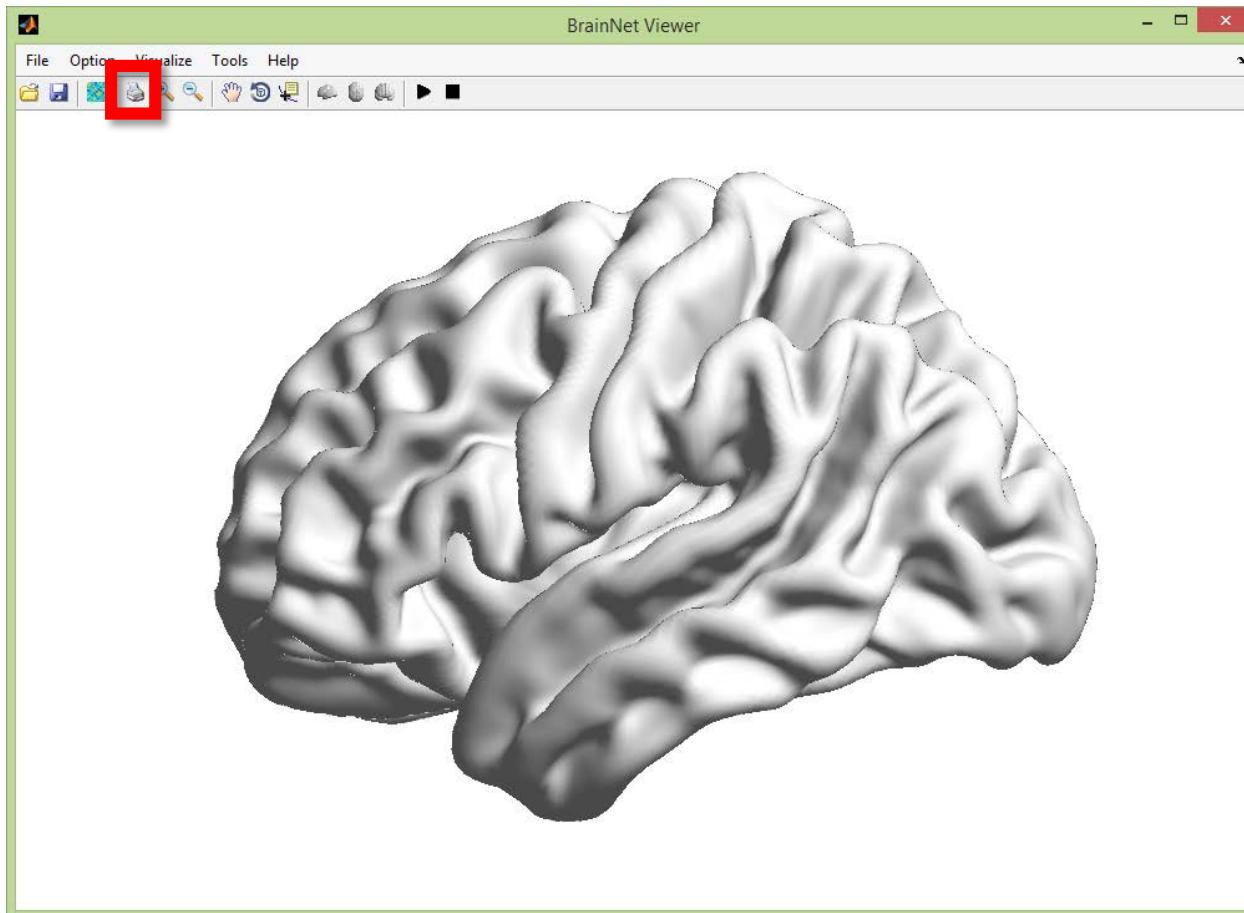


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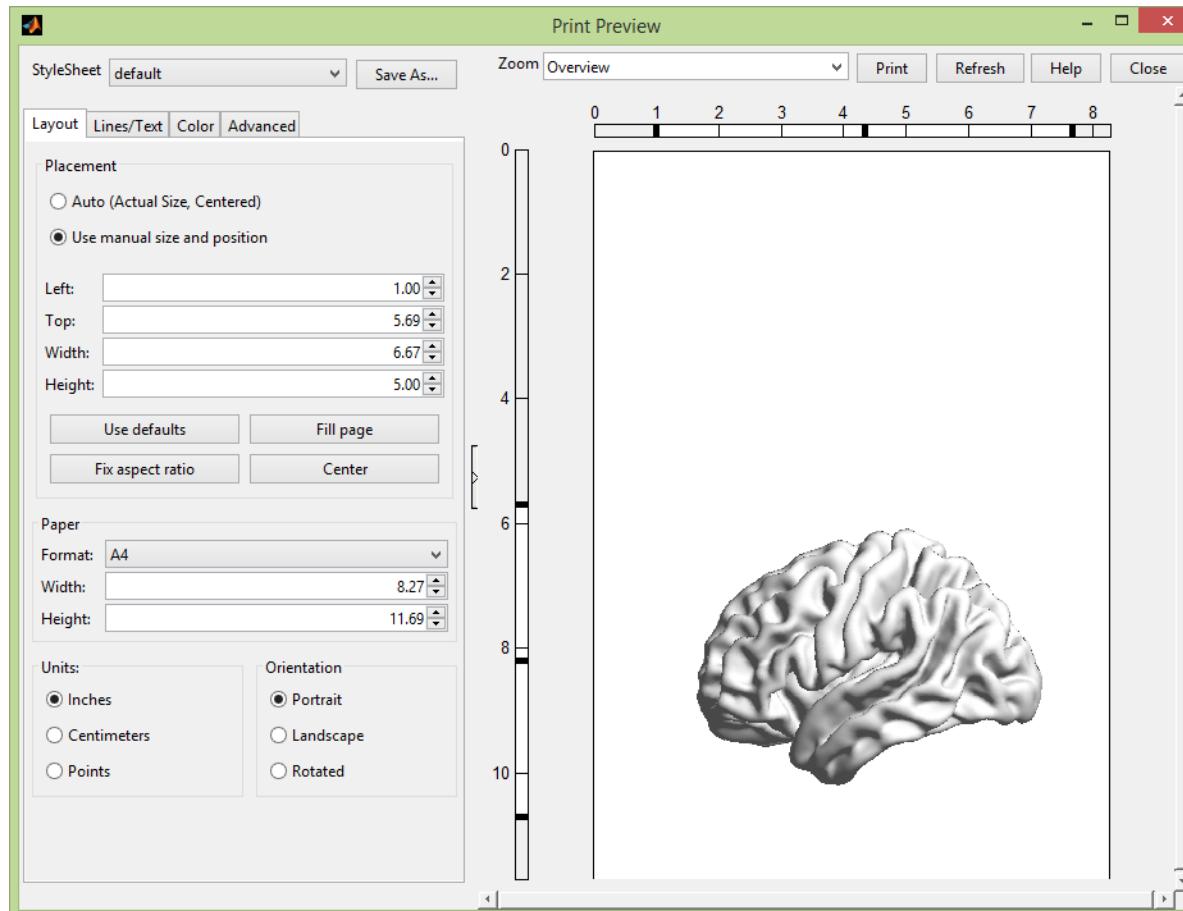
Example 2: Use interactions

Print



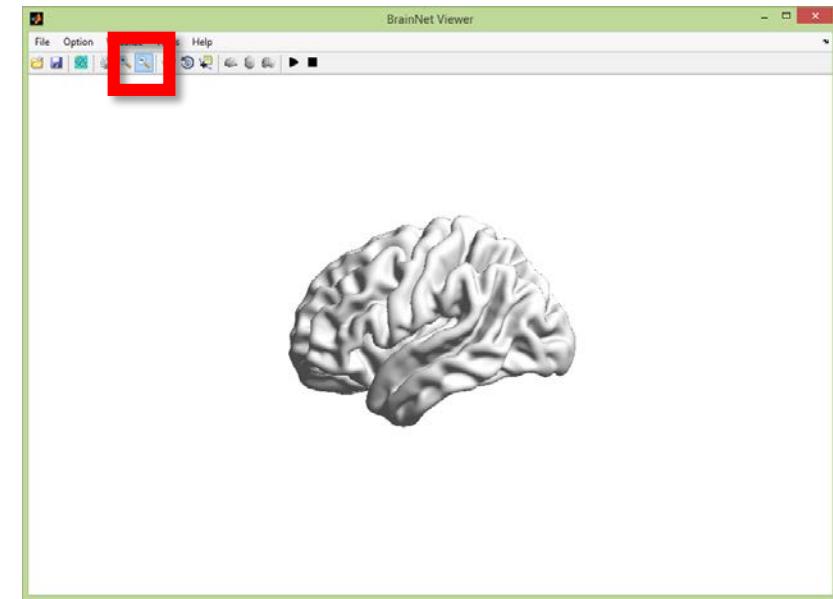
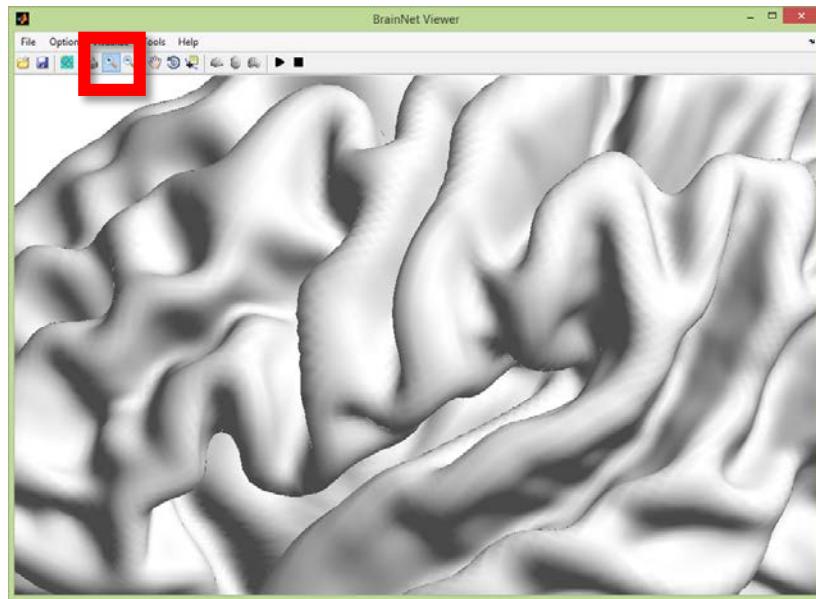
Example 2: Use interactions

Print



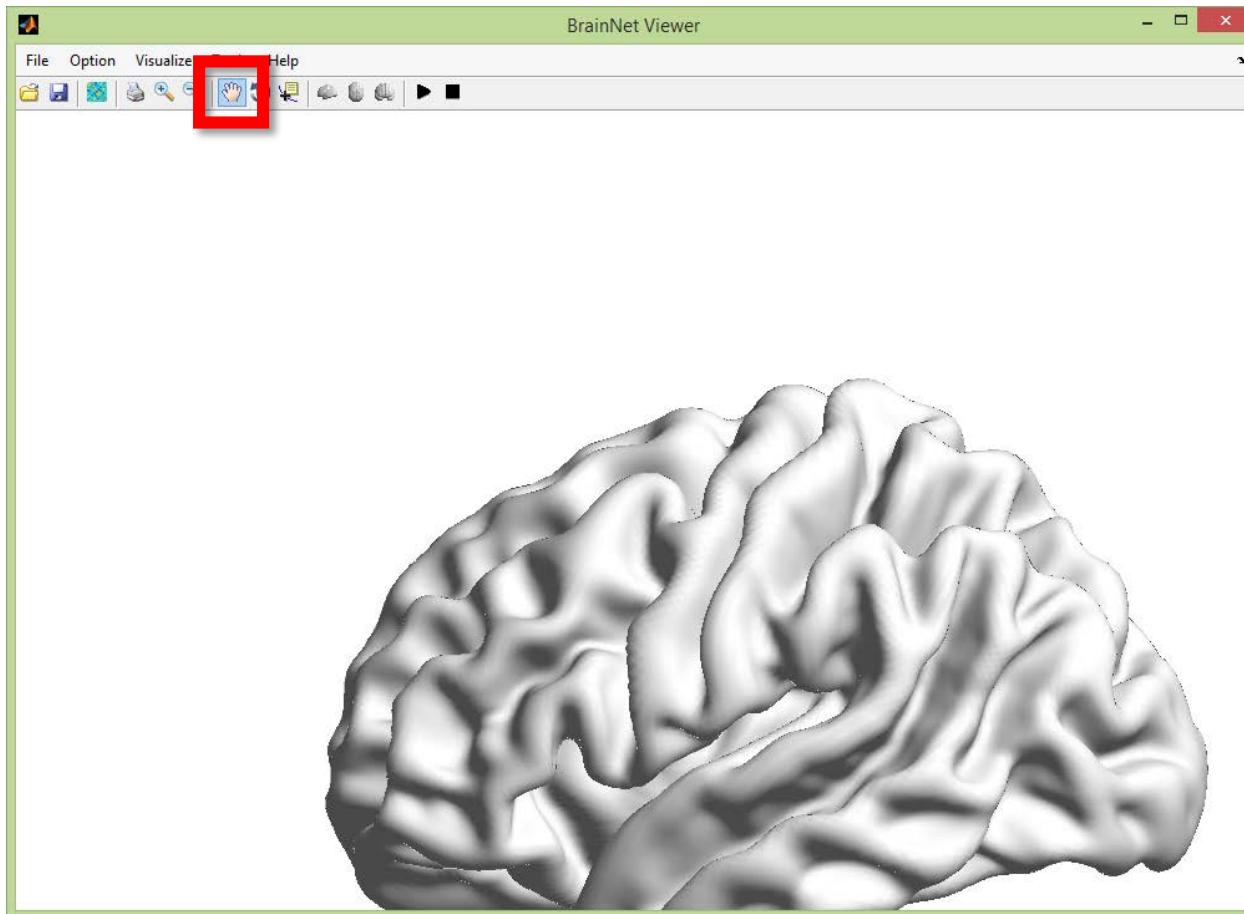
Example 2: Use interactions

Zoom in & zoom out



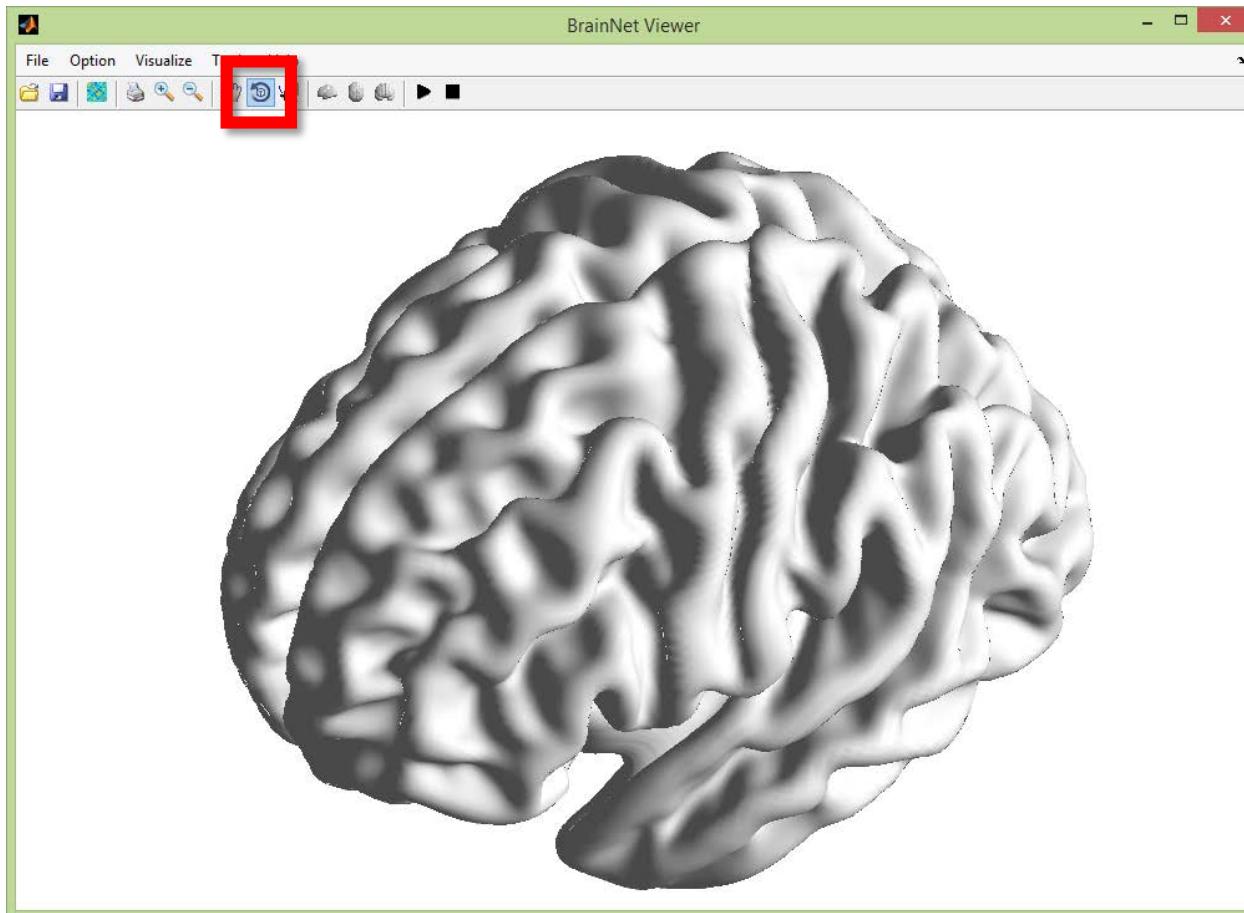
Example 2: Use interactions

Move



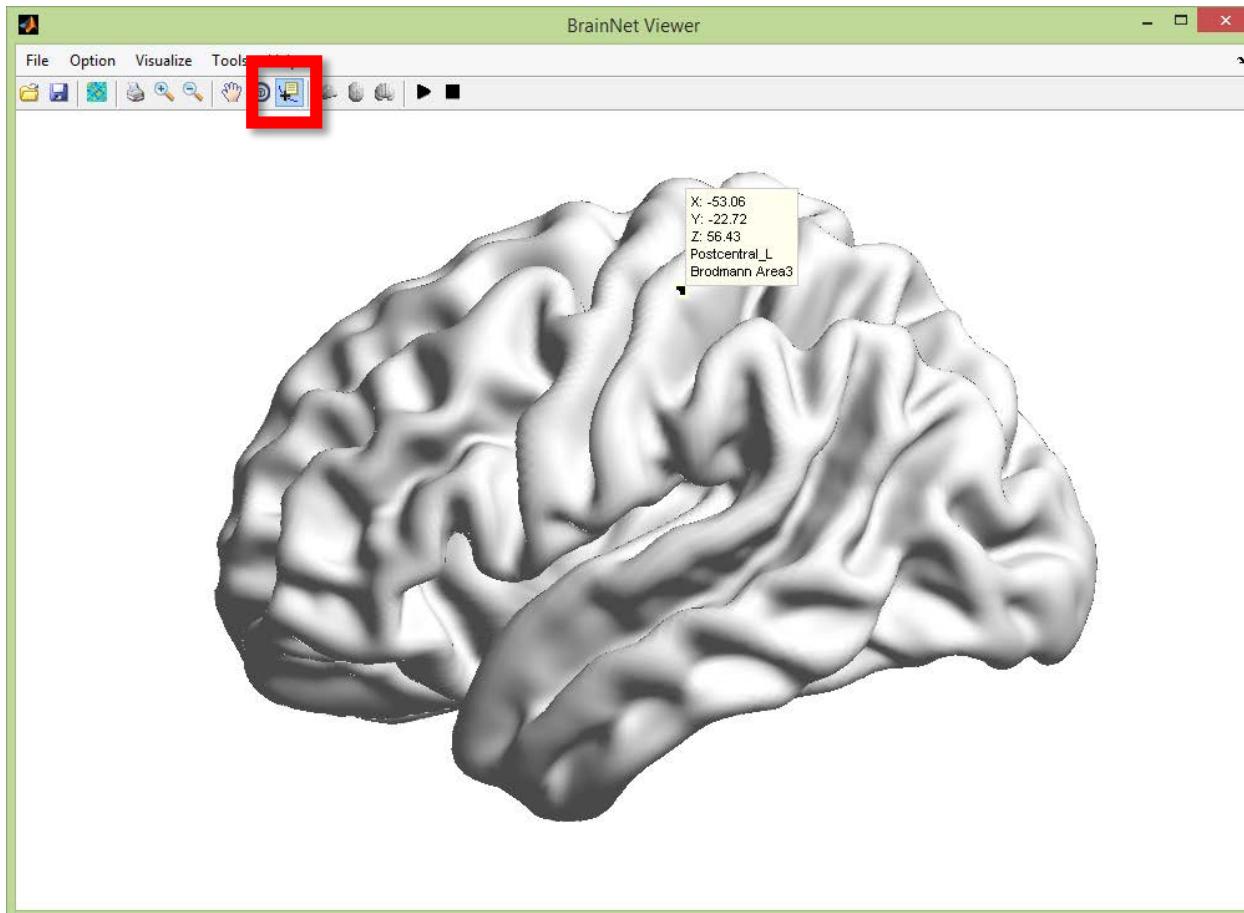
Example 2: Use interactions

Rotate



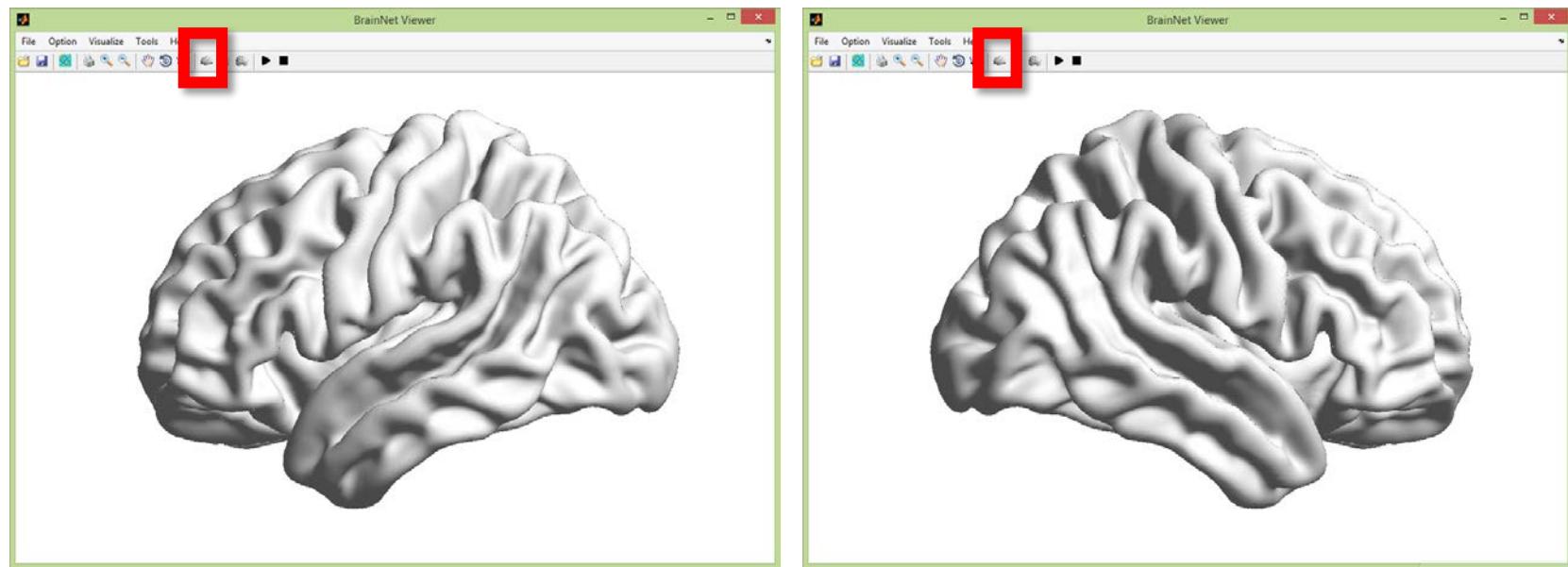
Example 2: Use interactions

Data cursor



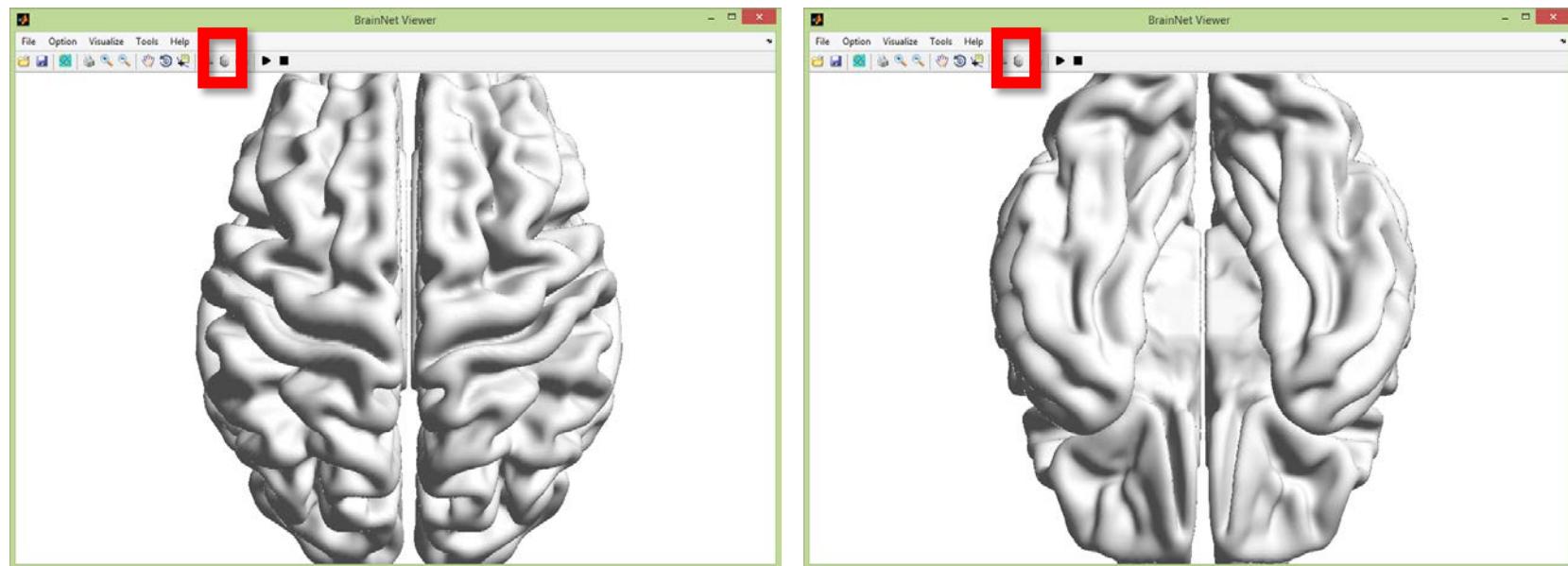
Example 2: Use interactions

Sagittal view



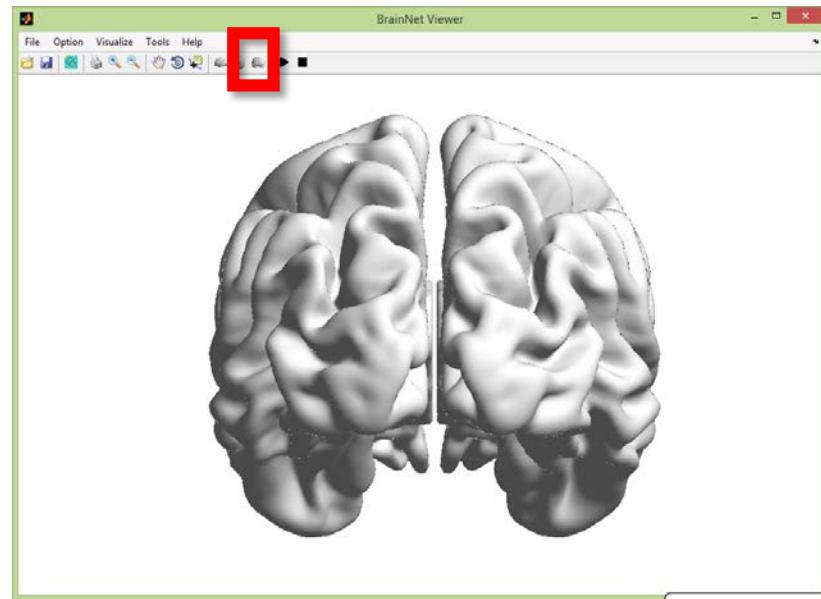
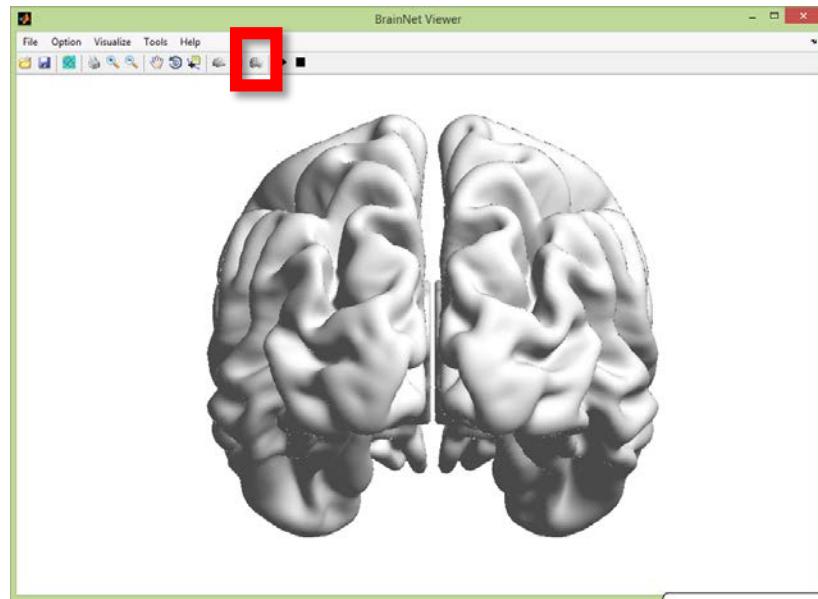
Example 2: Use interactions

Axial view



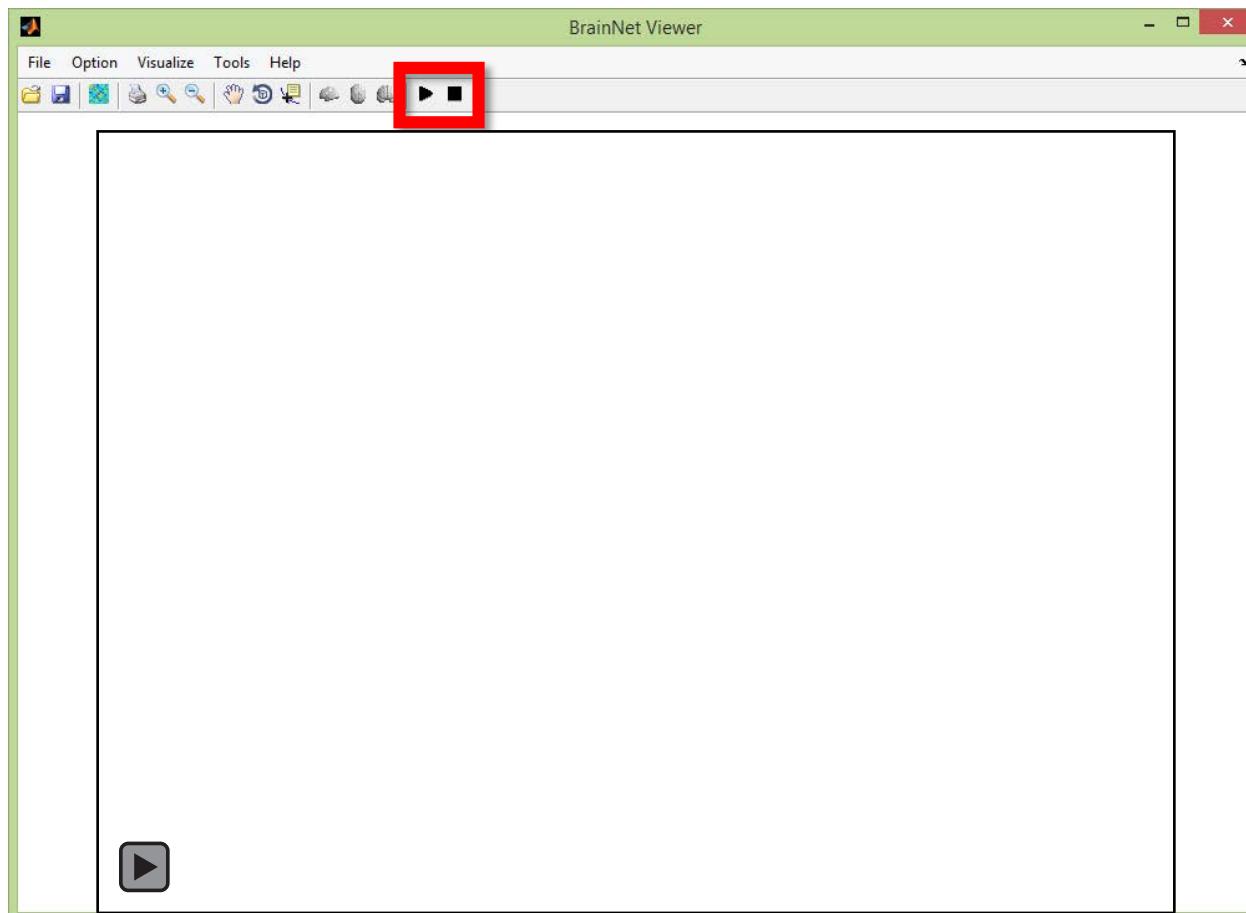
Example 2: Use interactions

Coronal view



Example 2: Use interactions

Demo and stop

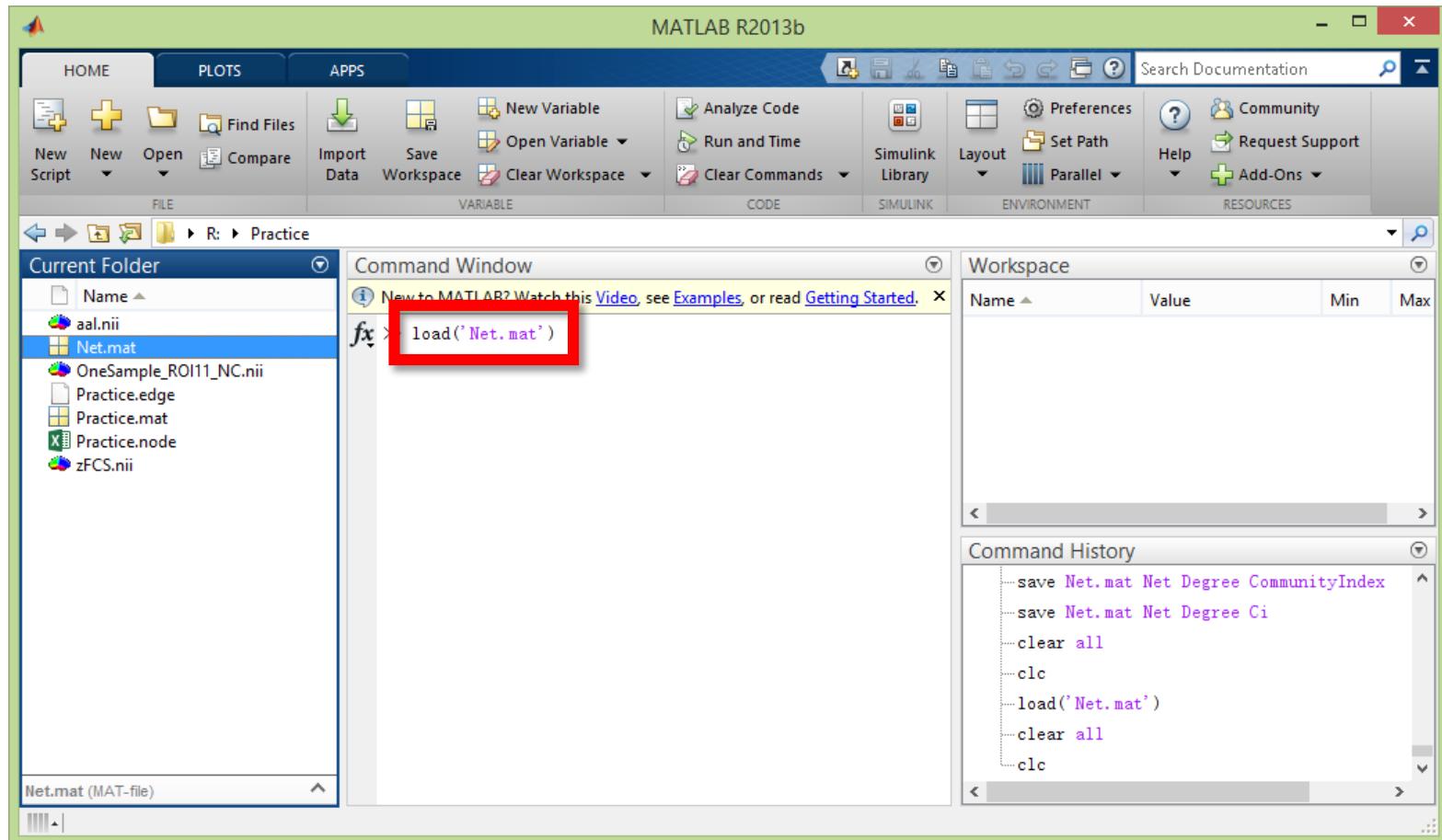


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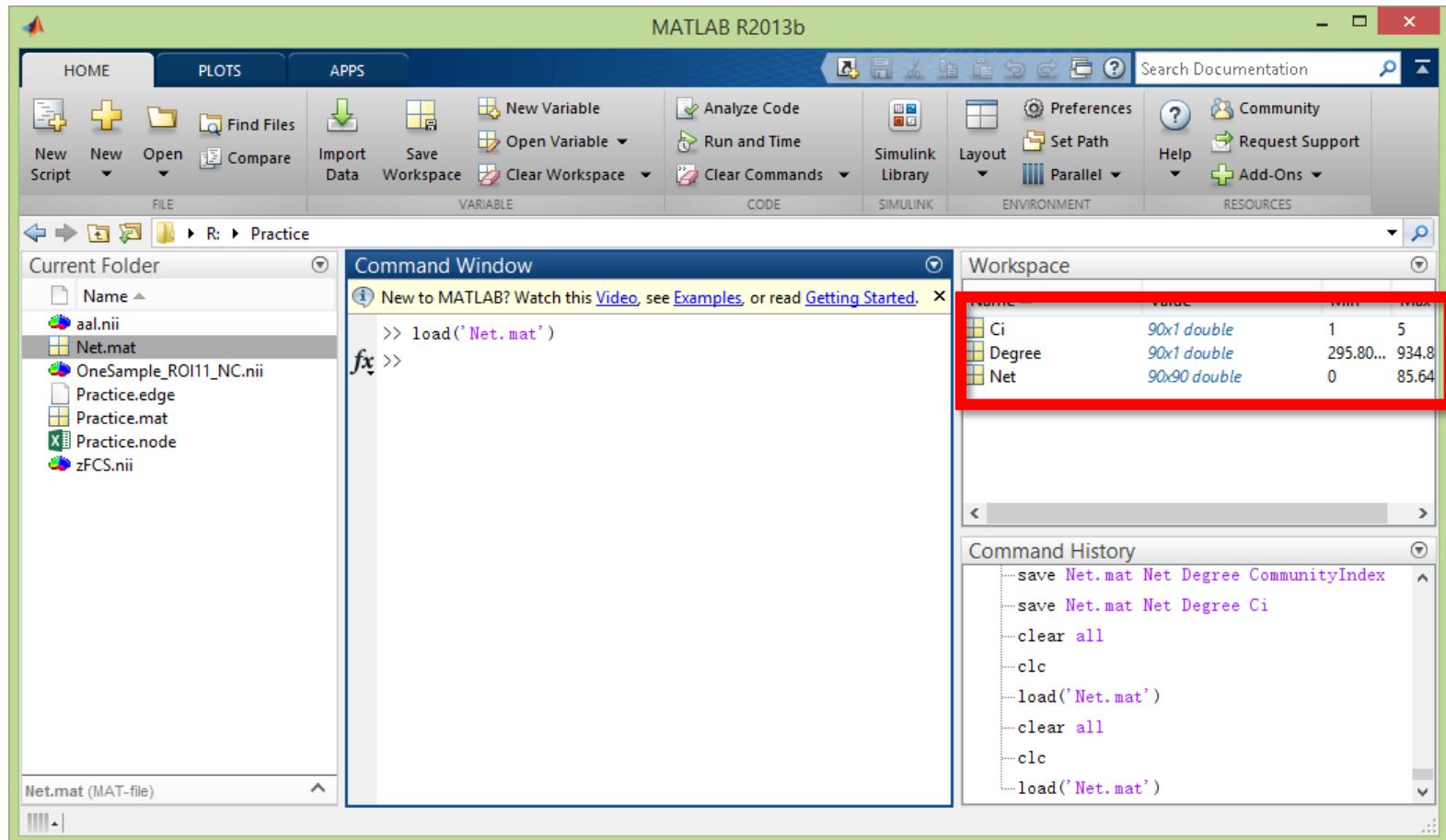
Example 3: Visualize brain surface and node

Prepare node file



Example 3: Visualize brain surface and node

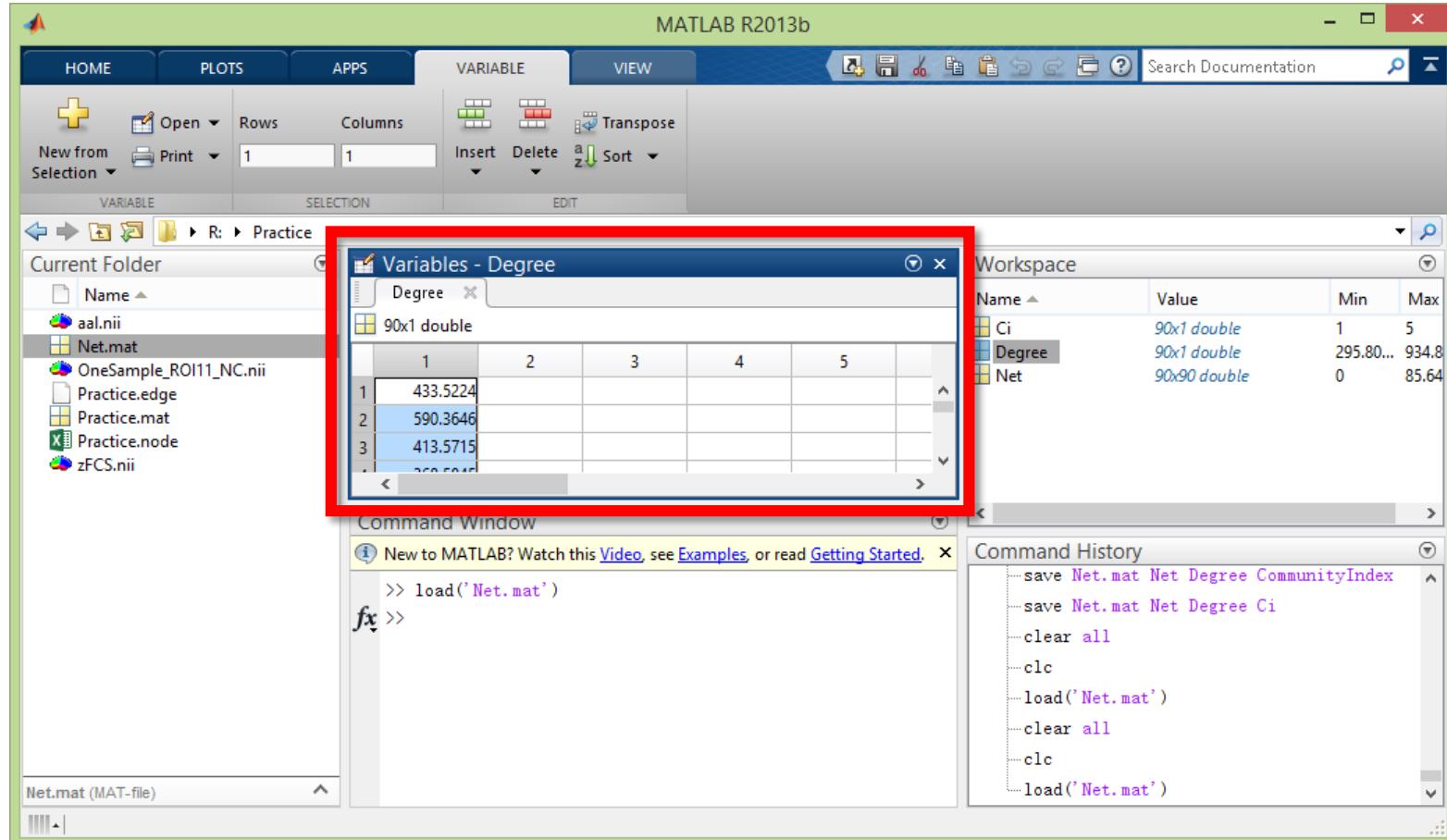
Prepare node file



Example 3: Visualize brain surface and node

Prepare node file

Note: copy the value of variable Degree



Example 3: Visualize brain surface and node

Prepare node file

Note: open the node file with Excel

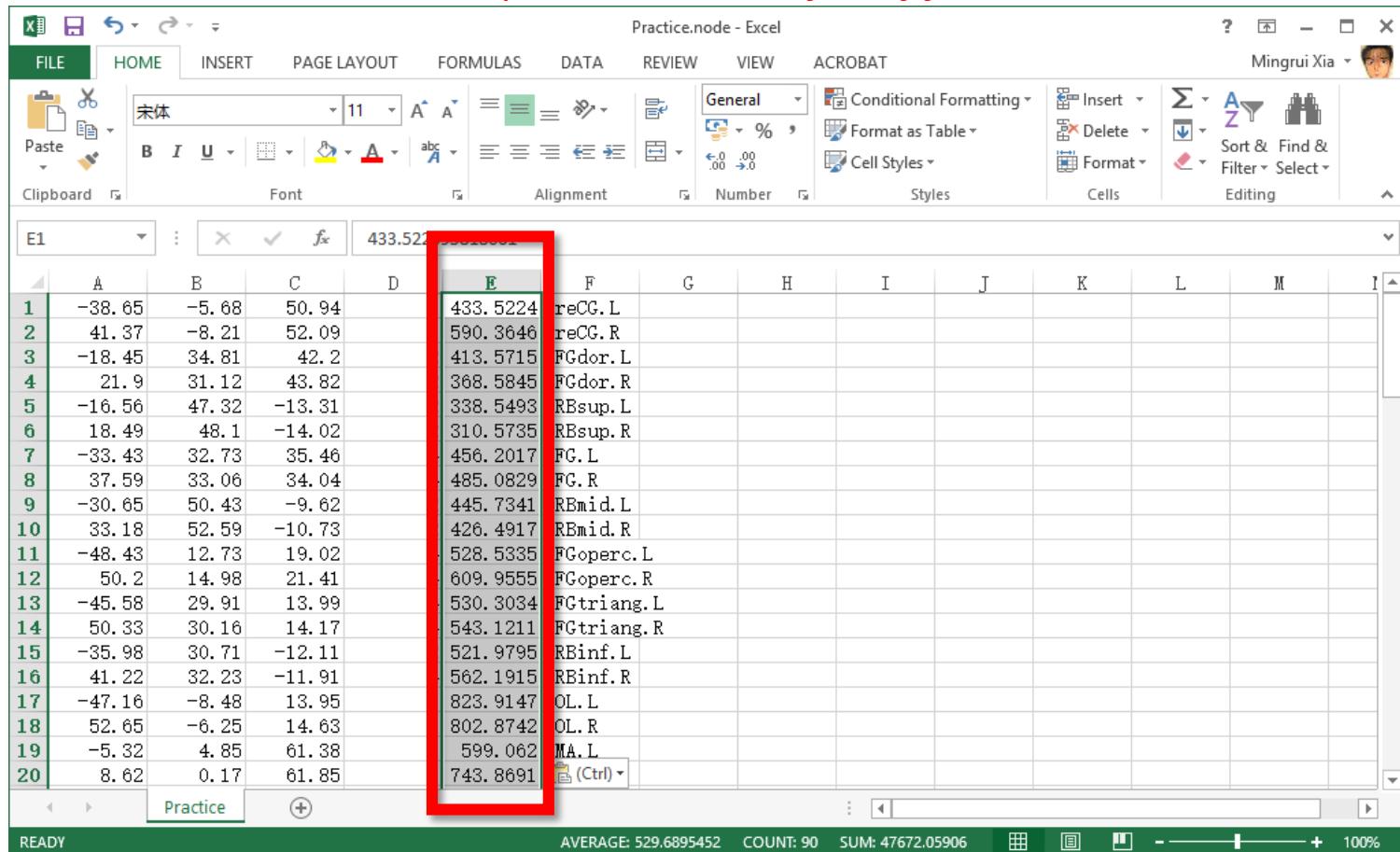
The screenshot shows a Microsoft Excel spreadsheet titled "Practice.node - Excel". The data is organized into two columns: numerical coordinates in columns A-D and anatomical labels in column E. A red box highlights the first row of labels. The labels correspond to specific brain regions: PreCG.L, PreCG.R, FGdor.L, FGdor.R, RBsup.L, RBsup.R, FG.L, FG.R, RBmid.L, RBmid.R, FGoperc.L, FGoperc.R, FGtriang.L, FGtriang.R, RBinf.L, RBinf.R, OL.L, OL.R, MA.L, and MA.R.

	A	B	C	D	E
1	-38.65	-5.68	50.94		-0.69939
2	41.37	-8.21	52.09		0.441269
3	-18.45	34.81	42.2		-0.844449
4	21.9	31.12	43.82		-1.17166
5	-16.56	47.32	-13.31		-1.3901
6	18.49	48.1	-14.02		-1.59356
7	-33.43	32.73	35.46		-0.53445
8	37.59	33.06	34.04		-0.32441
9	-30.65	50.43	-9.62		-0.61058
10	33.18	52.59	-10.73		-0.75052
11	-48.43	12.73	19.02		-0.00841
12	50.2	14.98	21.41		0.583748
13	-45.58	29.91	13.99		0.004464
14	50.33	30.16	14.17		0.097683
15	-35.98	30.71	-12.11		-0.05607
16	41.22	32.23	-11.91		0.236376
17	-47.16	-8.48	13.95		2.139801
18	52.65	-6.25	14.63		1.986781
19	-5.32	4.85	61.38		0.504523
20	8.62	0.17	61.85		1.557656

Example 3: Visualize brain surface and node

Prepare node file

*Note: to display the nodal size as degree,
replace the value of the fifth column with the value of Degree*

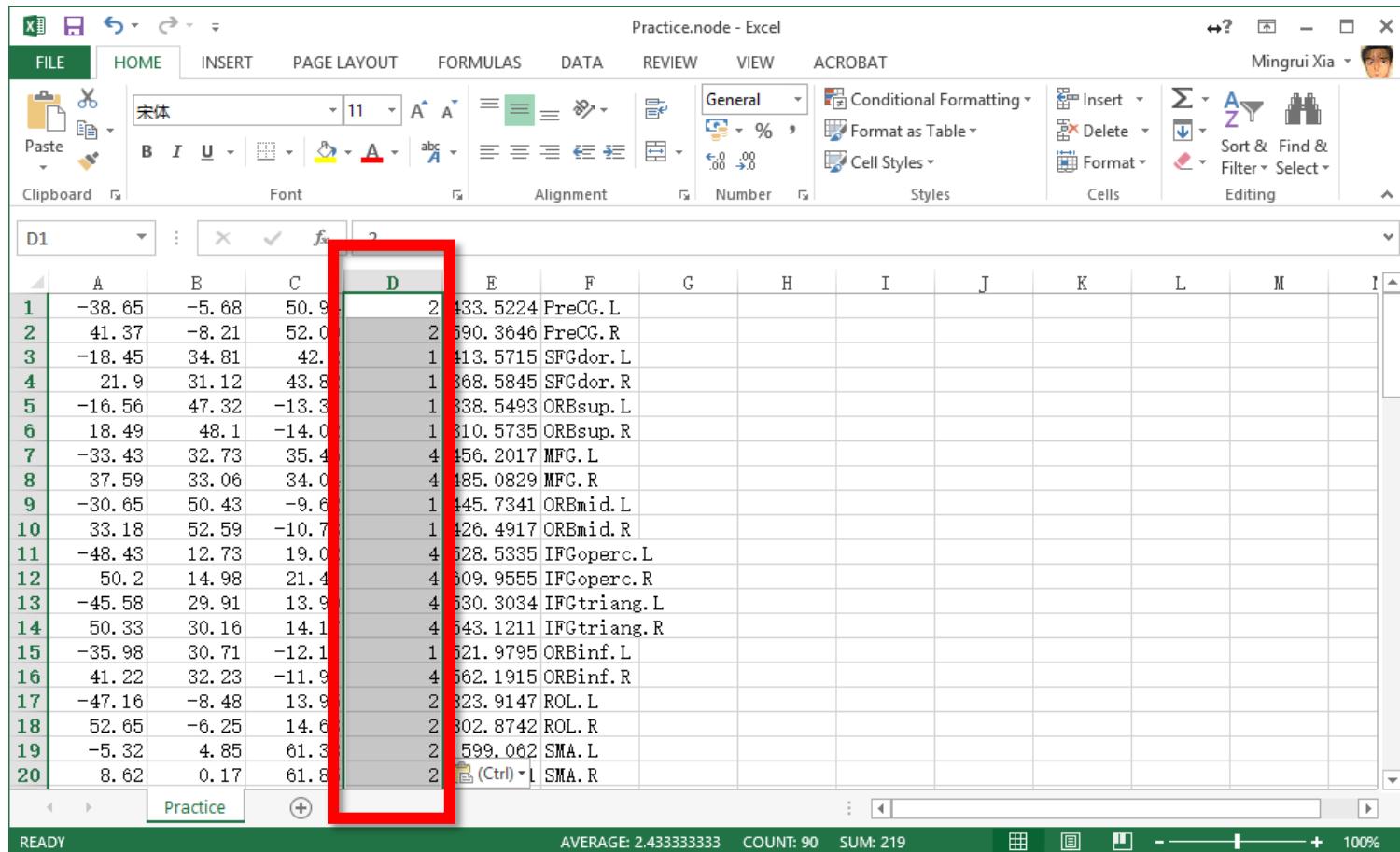


	A	B	C	D	E	F	G	H	I	J	K	L	M	I
1	-38.65	-5.68	50.94		433.5224	reCG.L								
2	41.37	-8.21	52.09		590.3646	reCG.R								
3	-18.45	34.81	42.2		413.5715	FGdor.L								
4	21.9	31.12	43.82		368.5845	FGdor.R								
5	-16.56	47.32	-13.31		338.5493	RBsup.L								
6	18.49	48.1	-14.02		310.5735	RBsup.R								
7	-33.43	32.73	35.46		456.2017	FG.L								
8	37.59	33.06	34.04		485.0829	FG.R								
9	-30.65	50.43	-9.62		445.7341	RBmid.L								
10	33.18	52.59	-10.73		426.4917	RBmid.R								
11	-48.43	12.73	19.02		528.5335	FGoperc.L								
12	50.2	14.98	21.41		609.9555	FGoperc.R								
13	-45.58	29.91	13.99		530.3034	FGtriang.L								
14	50.33	30.16	14.17		543.1211	FGtriang.R								
15	-35.98	30.71	-12.11		521.9795	RBinf.L								
16	41.22	32.23	-11.91		562.1915	RBinf.R								
17	-47.16	-8.48	13.95		823.9147	OL.L								
18	52.65	-6.25	14.63		802.8742	OL.R								
19	-5.32	4.85	61.38		599.062	MA.L								
20	8.62	0.17	61.85		743.8691	(Ctrl)								

Example 3: Visualize brain surface and node

Prepare node file

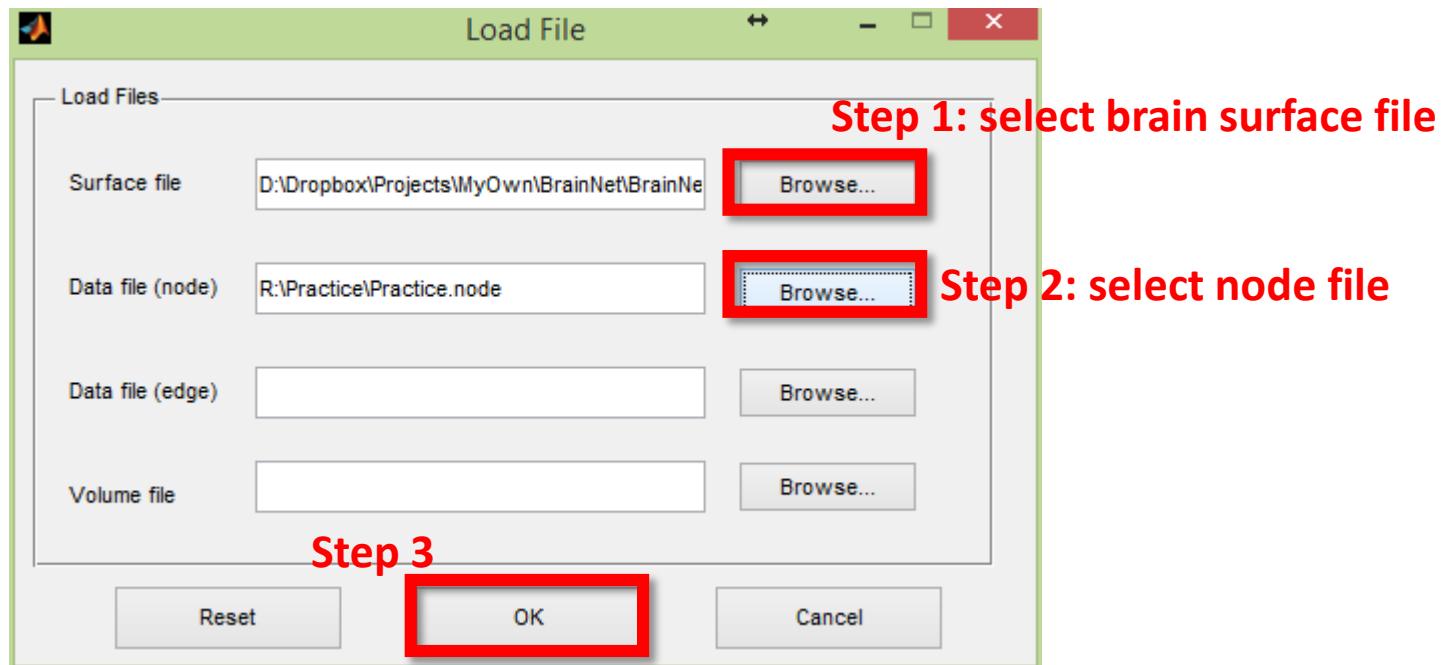
*Note: to display the nodal color as module,
replace the value of the forth column with the value of Ci.
Last step, save the file as its original format.*



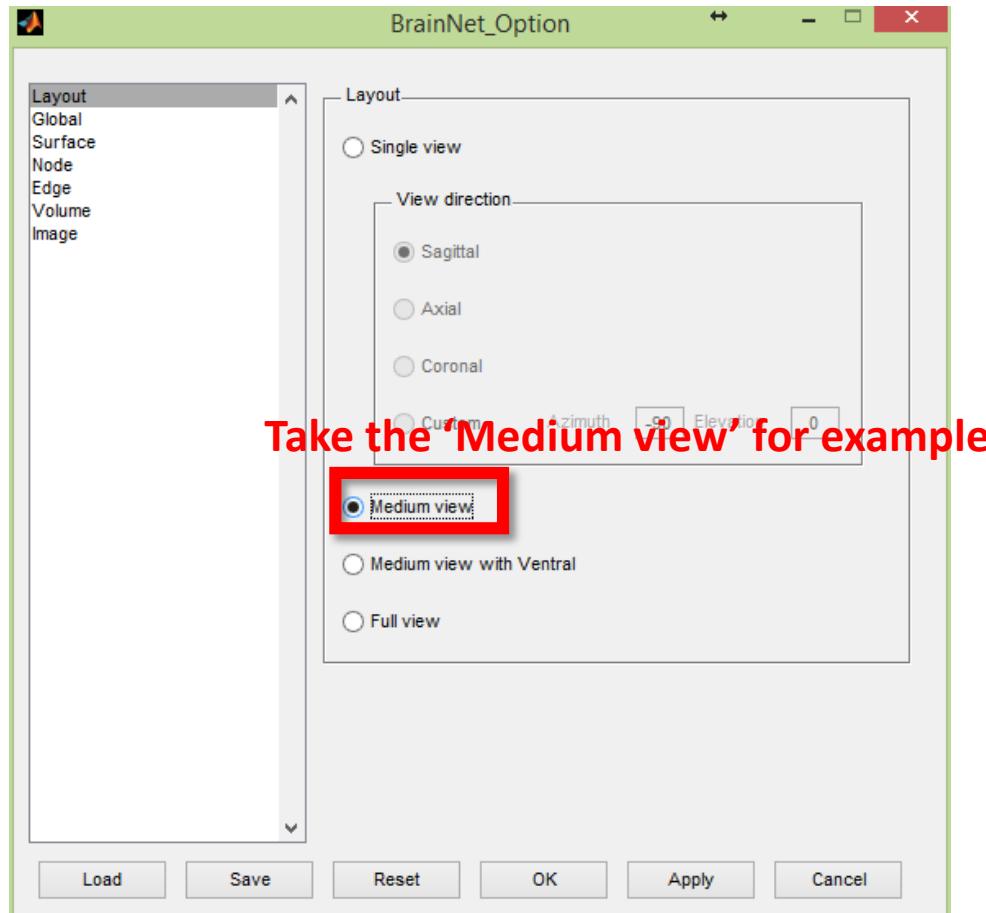
	A	B	C	D	E	F	G	H	I	J	K	L	M	I
1	-38.65	-5.68	50.9	2	433.5224	PreCG.L								
2	41.37	-8.21	52.0	2	590.3646	PreCG.R								
3	-18.45	34.81	42.	1	413.5715	SFGdor.L								
4	21.9	31.12	43.8	1	368.5845	SFGdor.R								
5	-16.56	47.32	-13.3	1	338.5493	ORBsup.L								
6	18.49	48.1	-14.0	1	310.5735	ORBsup.R								
7	-33.43	32.73	35.4	4	456.2017	MFG.L								
8	37.59	33.06	34.0	4	485.0829	MFG.R								
9	-30.65	50.43	-9.6	1	445.7341	ORBmid.L								
10	33.18	52.59	-10.7	1	426.4917	ORBmid.R								
11	-48.43	12.73	19.0	4	628.5335	IFGoperc.L								
12	50.2	14.98	21.4	4	609.9555	IFGoperc.R								
13	-45.58	29.91	13.9	4	630.3034	IFGtriang.L								
14	50.33	30.16	14.1	4	643.1211	IFGtriang.R								
15	-35.98	30.71	-12.1	1	621.9795	ORBinf.L								
16	41.22	32.23	-11.9	4	662.1915	ORBinf.R								
17	-47.16	-8.48	13.9	2	323.9147	ROL.L								
18	52.65	-6.25	14.6	2	302.8742	ROL.R								
19	-5.32	4.85	61.3	2	599.062	SMA.L								
20	8.62	0.17	61.8	2	(Ctrl)	SMA.R								

Example 3: Visualize brain surface and node

Load files

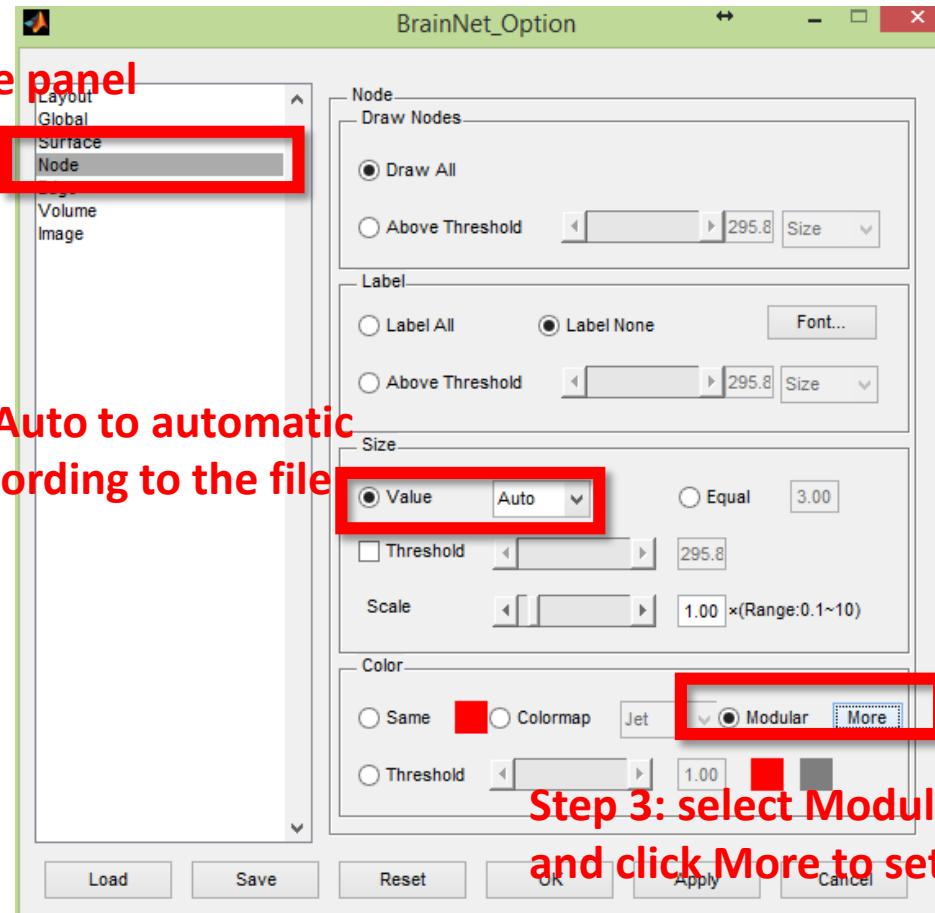


Example 3: Visualize brain surface and node *Configuration - layout*



Example 3: Visualize brain surface and node Configuration - node

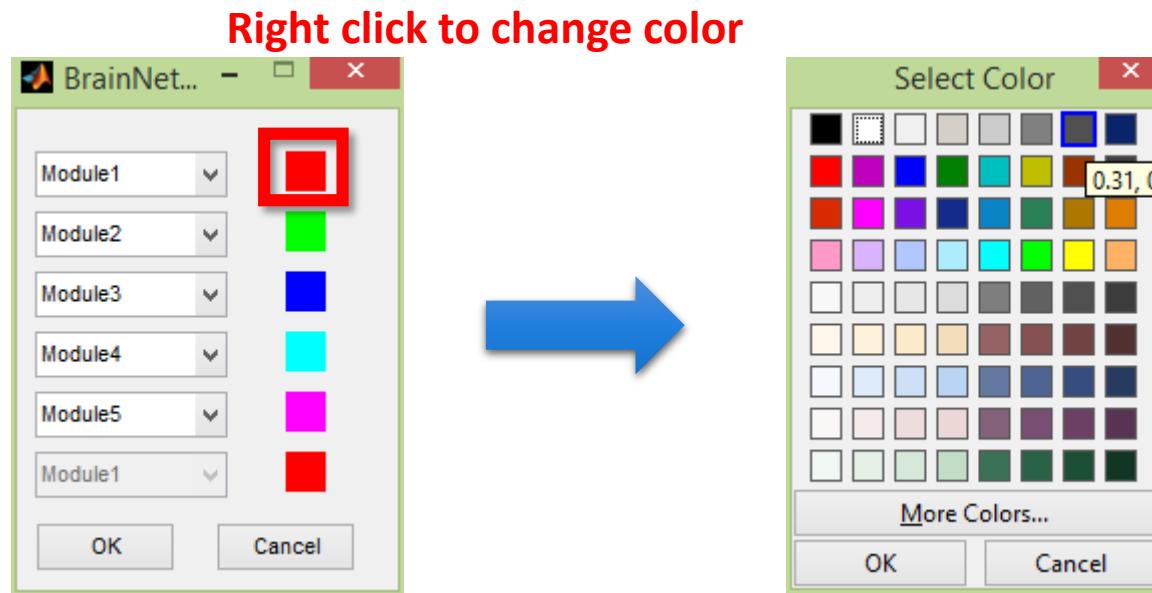
Step 1: select the Node panel



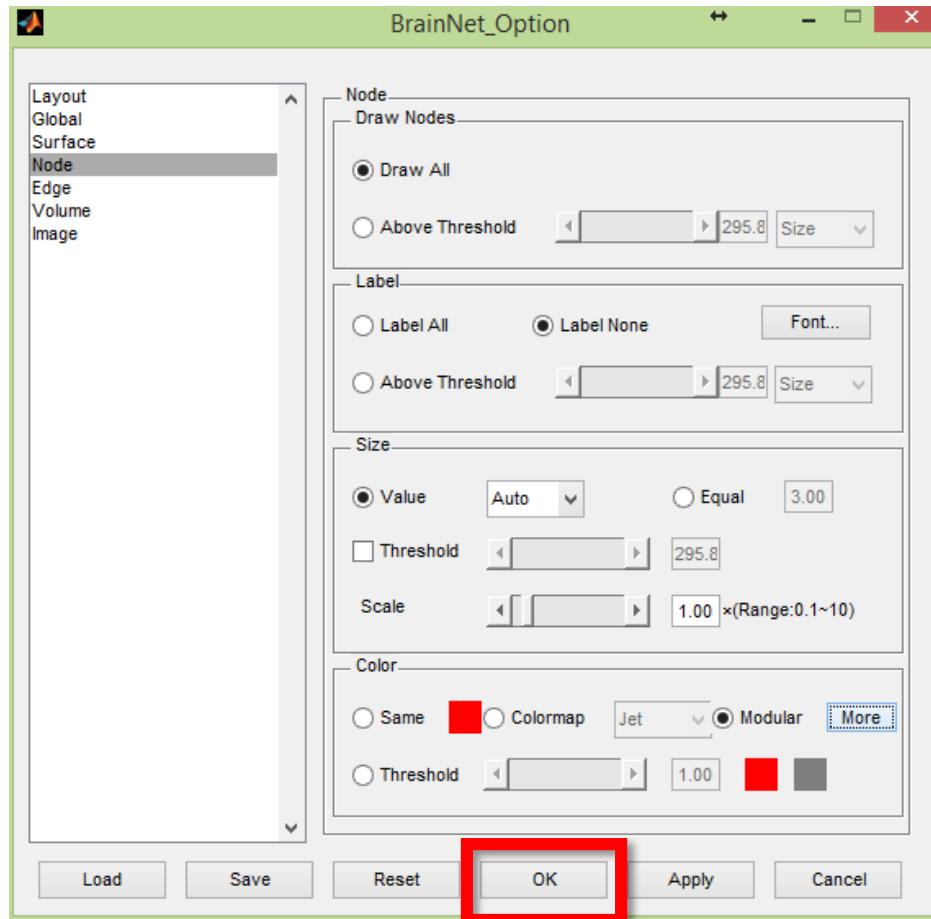
Step 2: select Value->Auto to automatic
arrange nodal size according to the file

Step 3: select Modular to set nodal color,
and click More to set the color of each module

Example 3: Visualize brain surface and node *Configuration – nodal color*



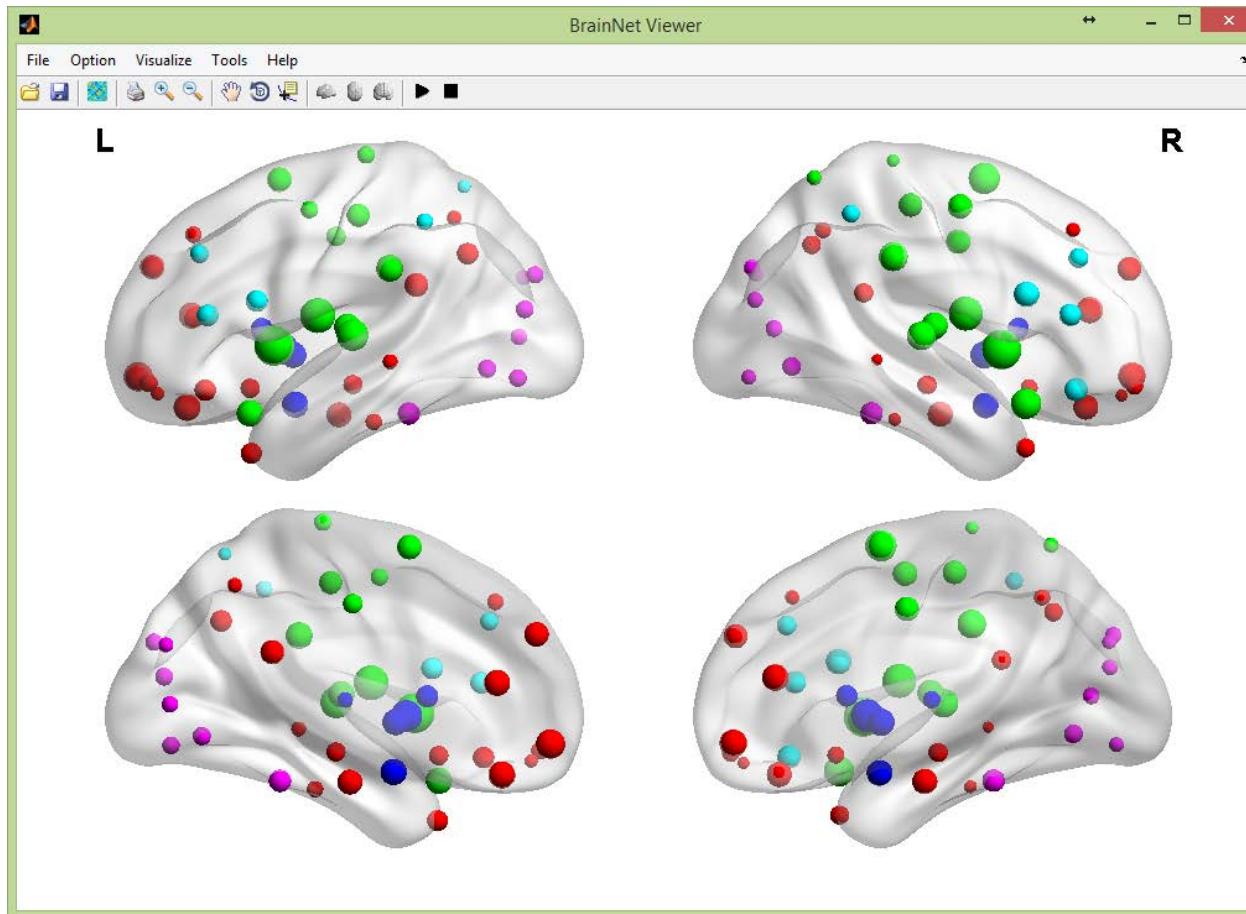
Example 3: Visualize brain surface and node Configuration - node



Click OK when finish setting

Example 3: Visualize brain surface and node

Figure drawing



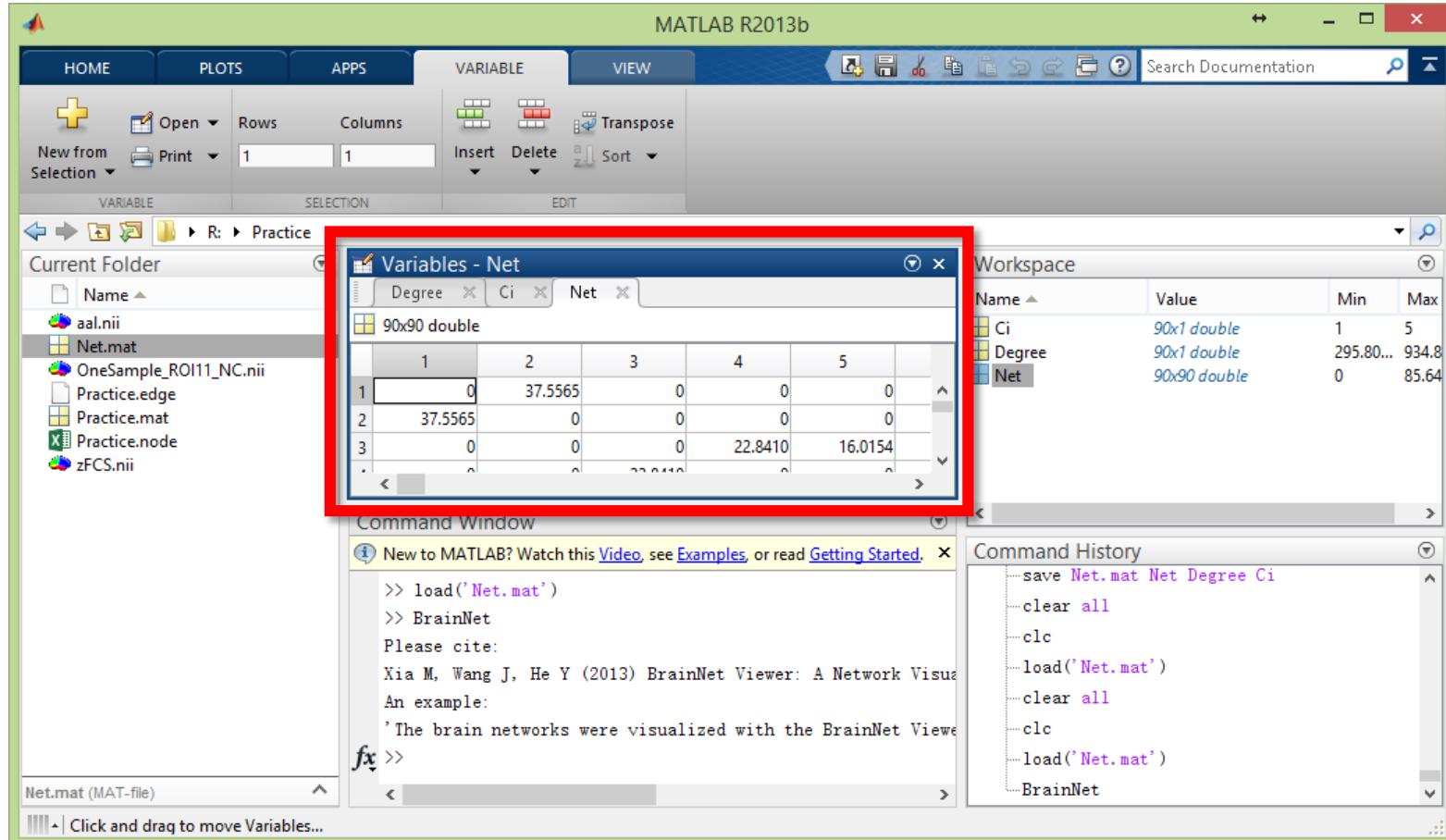
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Example 4: Visualize brain network

Prepare edge file, see example 3 for node file preparation

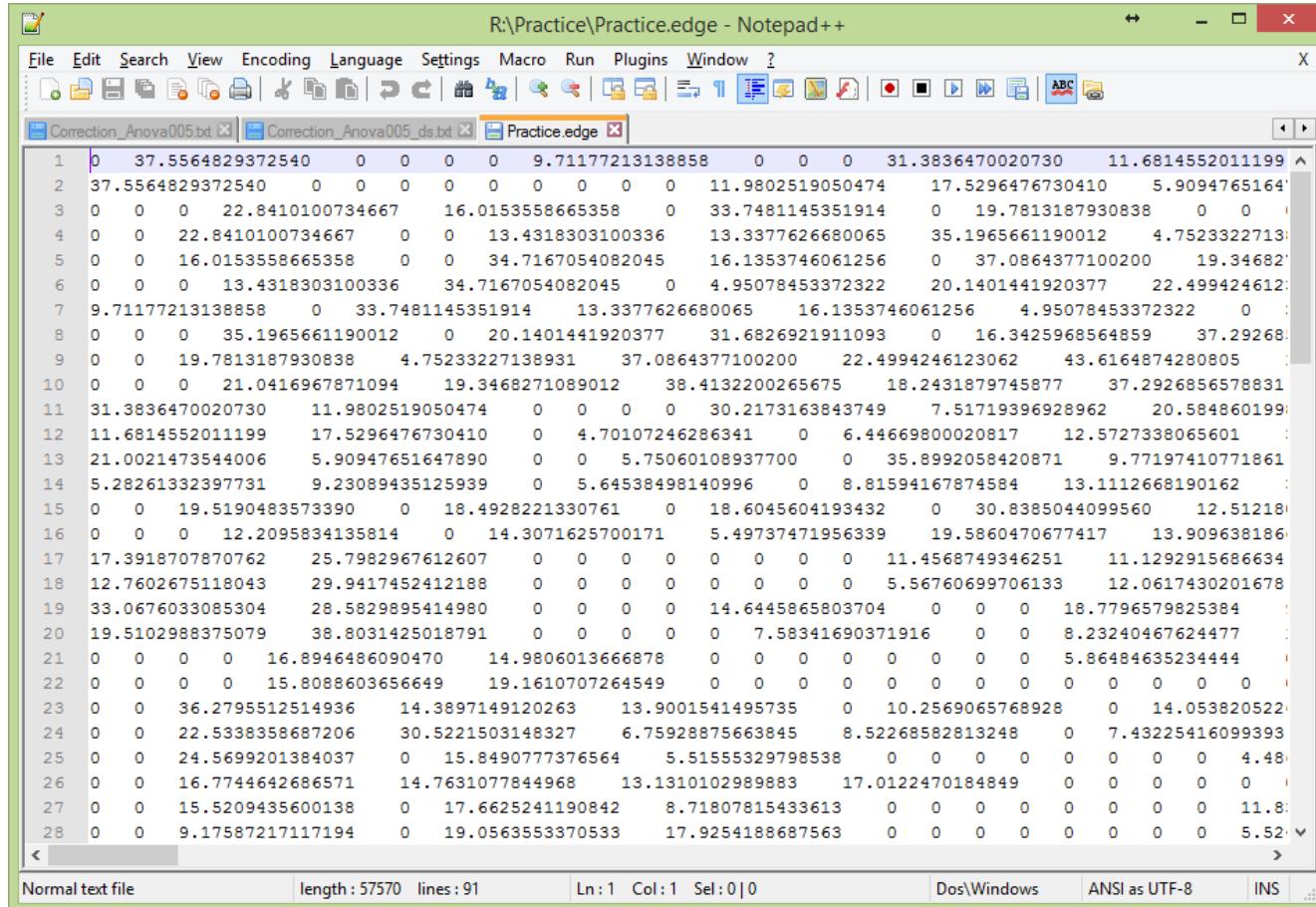
Note: copy the value of variable Net



Example 4: Visualize brain network

Prepare edge file

Note: open the Practice.edge file with text editor, paste the matrix, and save in original file format



The screenshot shows the Notepad++ application window with the title bar "R:\Practice\Practice.edge - Notepad++". The menu bar includes File, Edit, Search, View, Encoding, Language, Settings, Macro, Run, Plugins, Window, and ?.

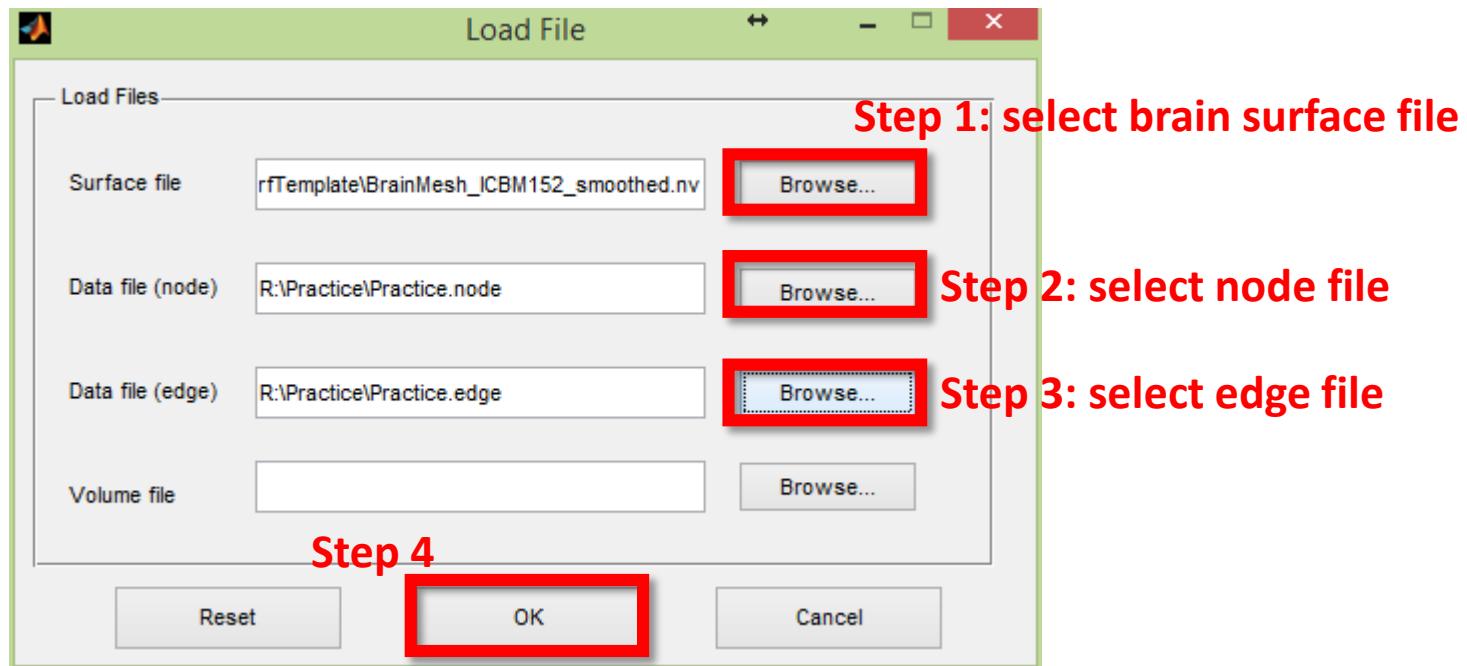
The main pane displays a text file named "Practice.edge" containing a sparse matrix of numerical values. The matrix has 28 rows and 11 columns. The values are mostly zero, with non-zero entries scattered across the rows. Some entries are very large, such as 37.5564829372540 and 31.3836470020730.

Below the main pane, there is a status bar with the following information: "Normal text file", "length : 57570 lines : 91", "Ln:1 Col:1 Sel:0|0", "Dos\Windows", "ANSI as UTF-8", and "INS".

Row	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11
1	0	37.5564829372540	0	0	0	9.71177213138858	0	0	0	31.3836470020730	11.6814552011199
2	37.5564829372540	0	0	0	0	0	0	0	11.9802519050474	17.5296476730410	5.9094765164
3	0	0	22.8410100734667	16.0153558665358	0	33.7481145351914	0	19.7813187930838	0	0	0
4	0	0	22.8410100734667	0	0	13.4318303100336	13.3377626680065	35.1965661190012	4.7523322713	0	0
5	0	0	16.0153558665358	0	0	34.7167054082045	16.1353746061256	0	37.0864377100200	19.34682	0
6	0	0	0	13.4318303100336	34.7167054082045	0	4.95078453372322	20.1401441920377	22.499424612	0	0
7	9.71177213138858	0	33.7481145351914	13.3377626680065	16.1353746061256	4.95078453372322	0	0	0	0	0
8	0	0	35.1965661190012	0	20.1401441920377	31.6826921911093	0	16.3425968564859	37.29268	0	0
9	0	0	19.7813187930838	4.75233227138931	37.0864377100200	22.4994246123062	43.6164874280805	0	0	0	0
10	0	0	0	21.0416967871094	19.3468271089012	38.4132200265675	18.2431879745877	37.2926856578831	0	0	0
11	31.3836470020730	11.9802519050474	0	0	0	30.2173163843749	7.51719396928962	20.584860199	0	0	0
12	11.6814552011199	17.5296476730410	0	4.70107246286341	0	6.44669800020817	12.5727338065601	0	0	0	0
13	21.0021473544006	5.90947651647890	0	0	5.75060108937700	0	35.8992058420871	9.77197410771861	0	0	0
14	5.28261332397731	9.23089435125939	0	5.64538498140996	0	8.81594167874584	13.1112668190162	0	0	0	0
15	0	0	19.5190483573390	0	18.4928221330761	0	18.6045604193432	0	30.8385044099560	12.51218	0
16	0	0	12.2095834135814	0	14.3071625700171	5.49737471956339	19.5860470677417	13.909638186	0	0	0
17	17.3918707870762	25.7982967612607	0	0	0	0	0	11.4568749346251	11.1292915686634	0	0
18	12.7602675118043	29.9417452412188	0	0	0	0	0	5.56760699706133	12.0617430201678	0	0
19	33.0676033085304	28.5829895414980	0	0	0	14.6445865803704	0	0	0	18.7796579825384	0
20	19.5102988375079	38.8031425018791	0	0	0	0	7.58341690371916	0	0	8.23240467624477	0
21	0	0	0	16.8946486094070	14.9806013666878	0	0	0	0	0	5.86484635234444
22	0	0	0	15.8088603656649	19.1610707264549	0	0	0	0	0	0
23	0	0	36.2795512514936	14.3897149120263	13.9001541495735	0	10.2569065768928	0	14.053820522	0	0
24	0	0	22.5338358687206	30.5221503148327	6.75928875663845	8.52268582813248	0	7.43225416099393	0	0	0
25	0	0	24.5699201384037	0	15.8490777376564	5.51555329798538	0	0	0	0	4.48
26	0	0	16.7744642686571	14.7631077844968	13.1310102989883	17.0122470184849	0	0	0	0	0
27	0	0	15.5209435600138	0	17.6625241190842	8.71807815433613	0	0	0	0	11.8
28	0	0	9.17587217117194	0	19.0563553370533	17.9254188687563	0	0	0	0	5.52

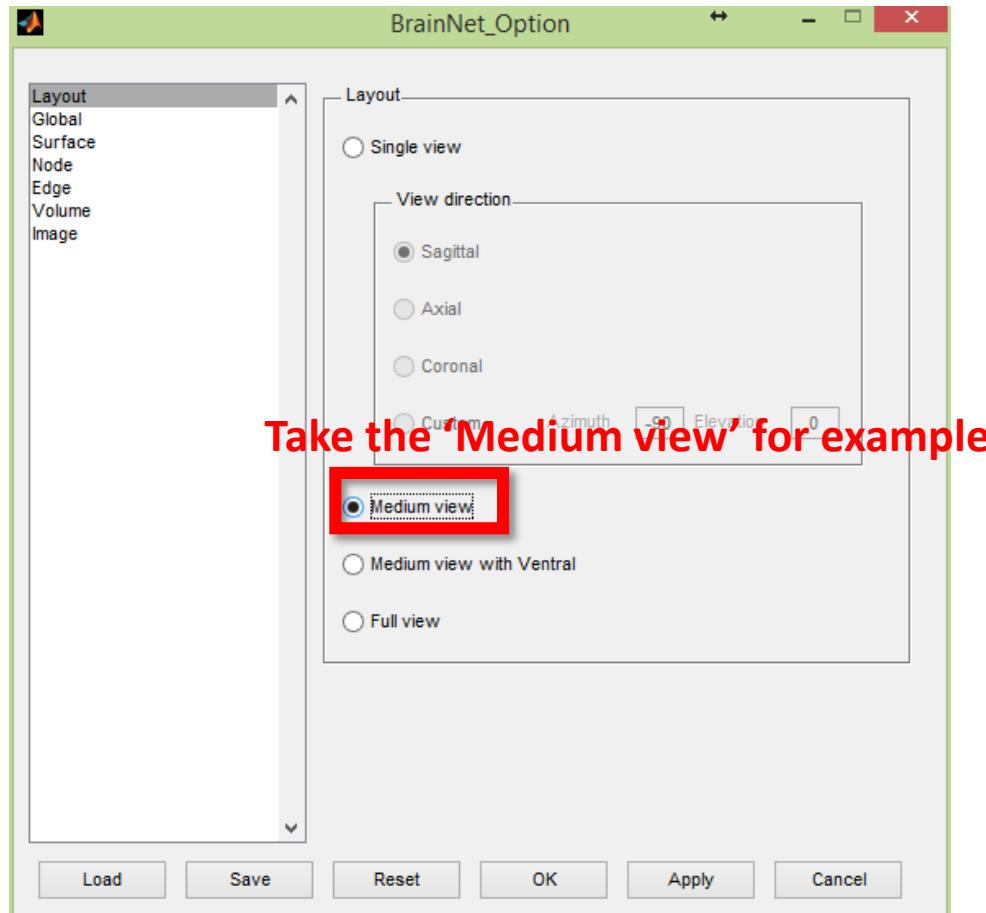
Example 4: Visualize brain network

Load files



Example 4: Visualize brain network

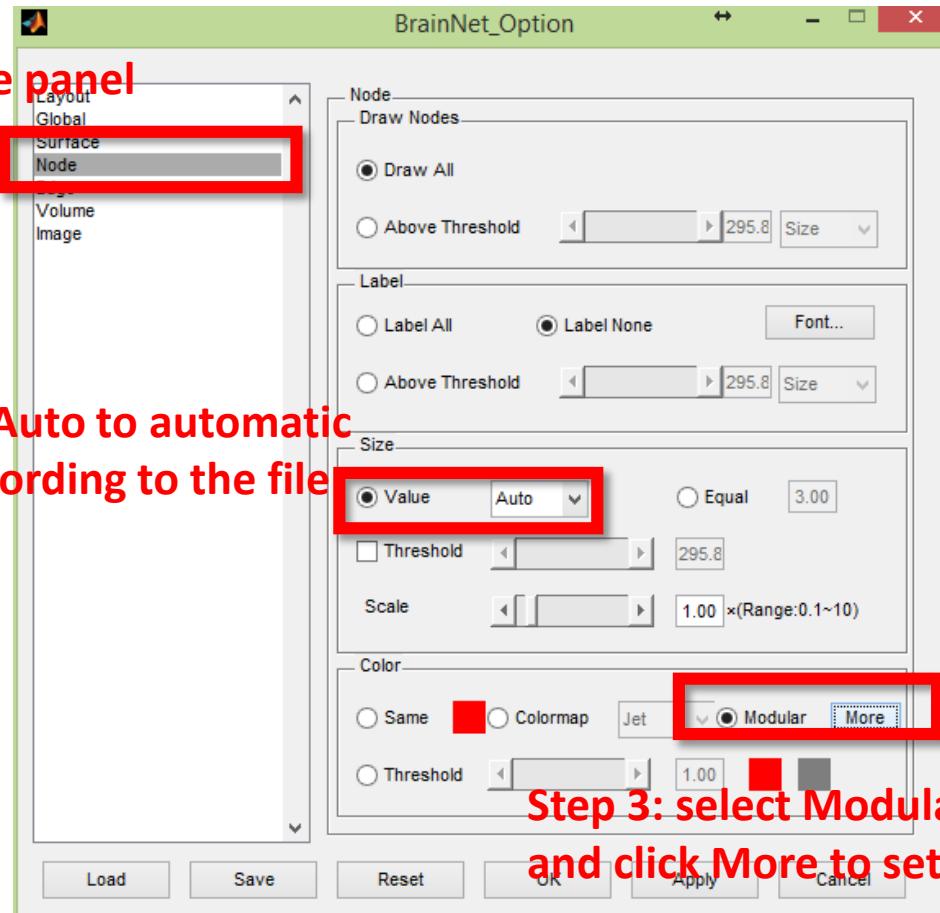
Configuration - layout



Example 4: Visualize brain network

Configuration - node

Step 1: select the Node panel



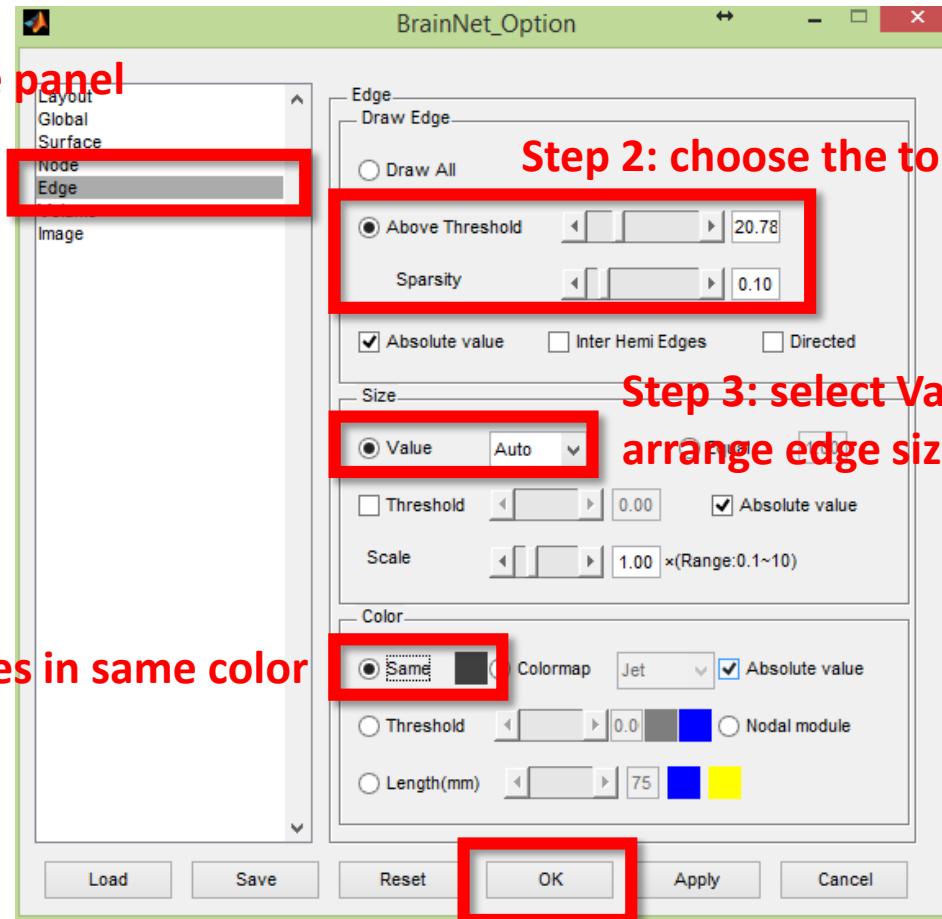
Step 2: select Value->Auto to automatic
arrange nodal size according to the file

Step 3: select Modular to set nodal color,
and click More to set the color of each module

Example 4: Visualize brain network

Configuration - edge

Step 1: select the Edge panel



Step 2: choose the top 10% edge to be drawn

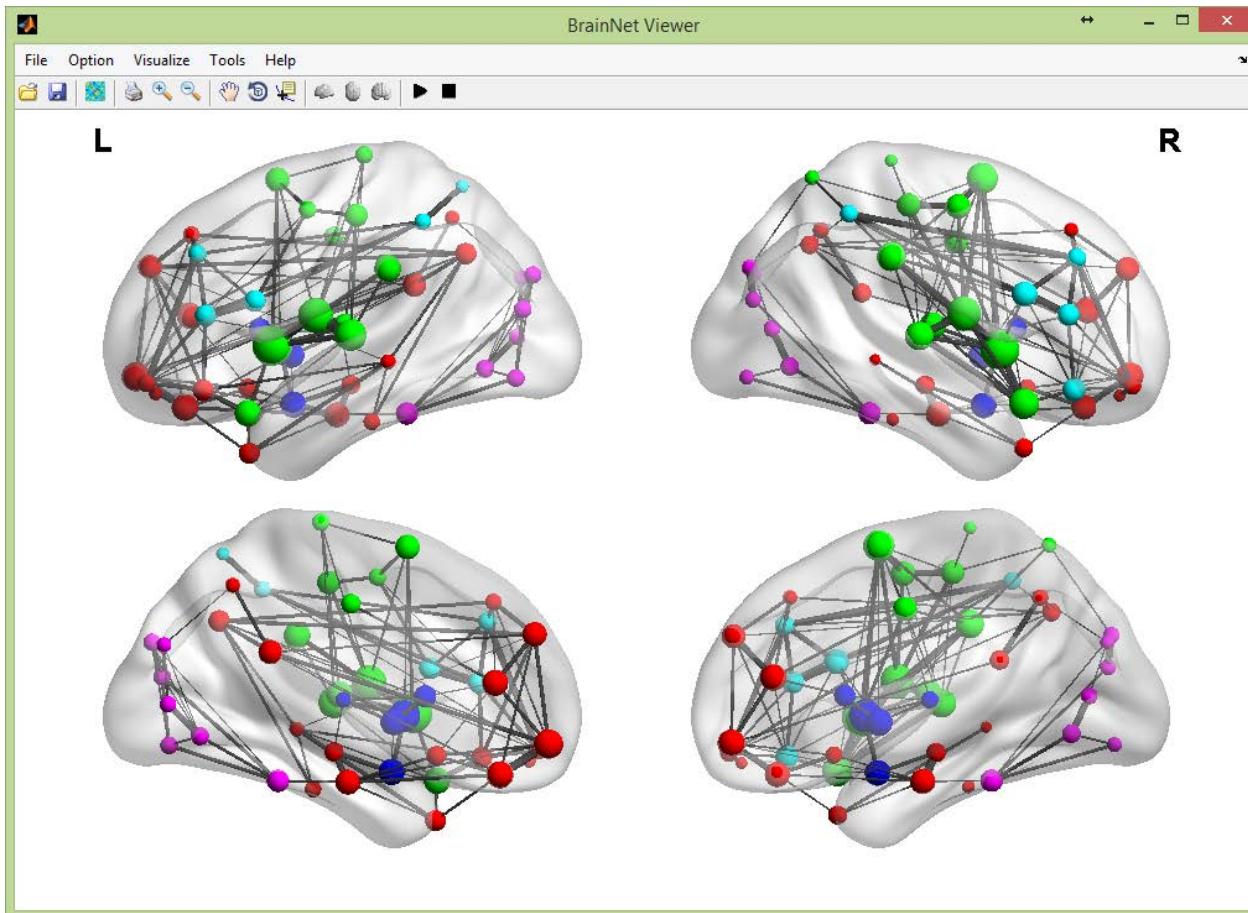
Step 3: select Value->Auto to automatic
arrange edge size according to the file

Step 4: display all edges in same color

Step 5: click OK when finish

Example 4: Visualize brain network

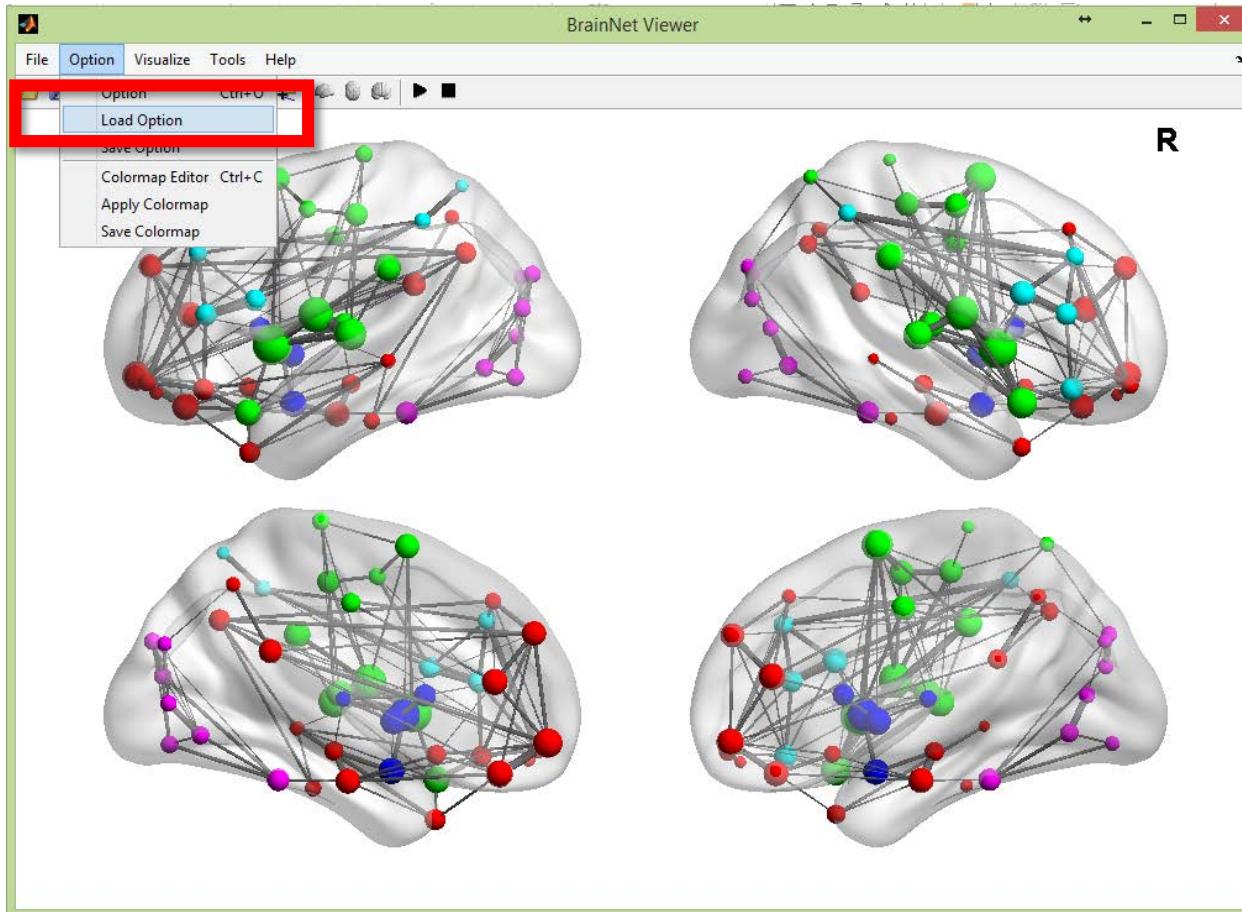
Figure drawing



Example 4: Visualize brain network

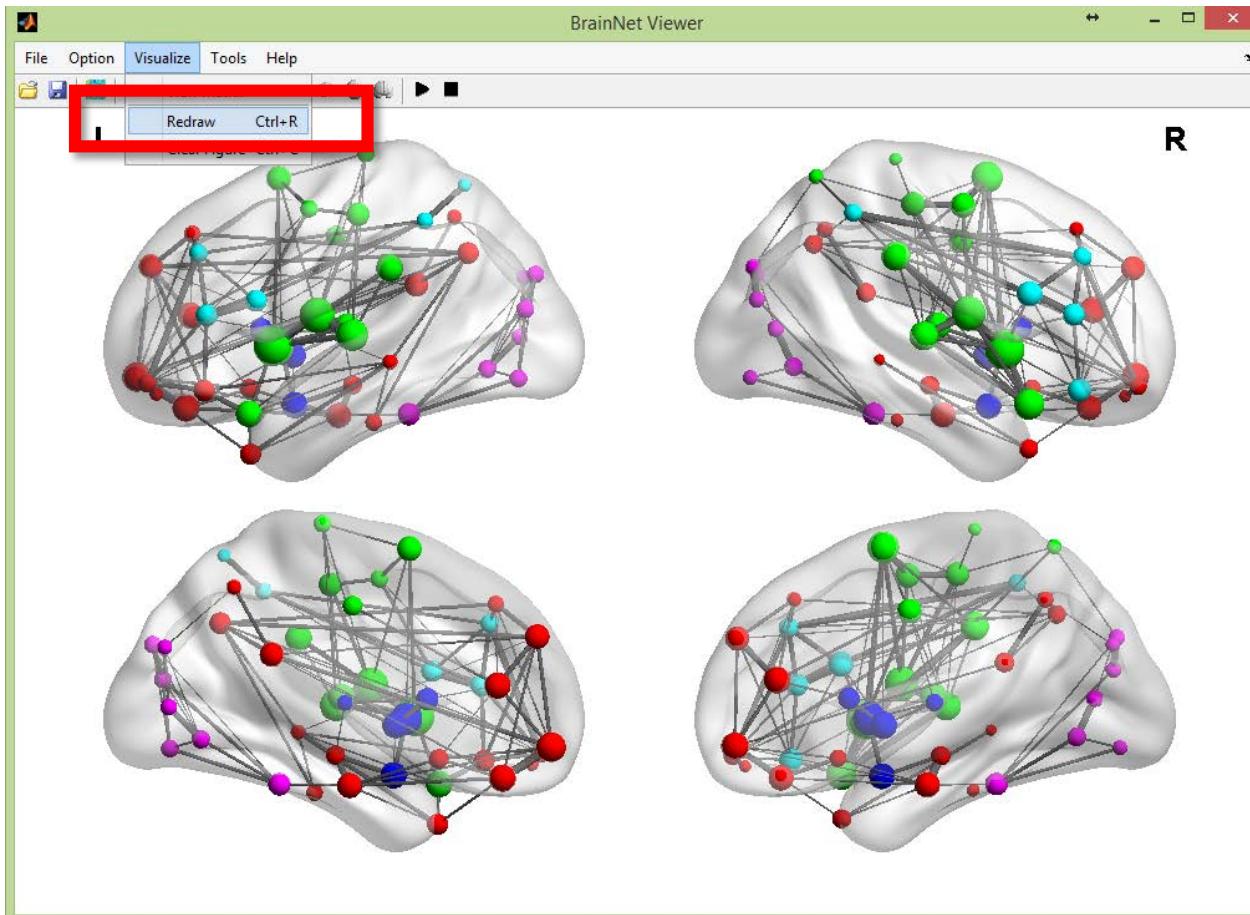
Load a pre-saved option file

Select Practice.mat in the popup dialog



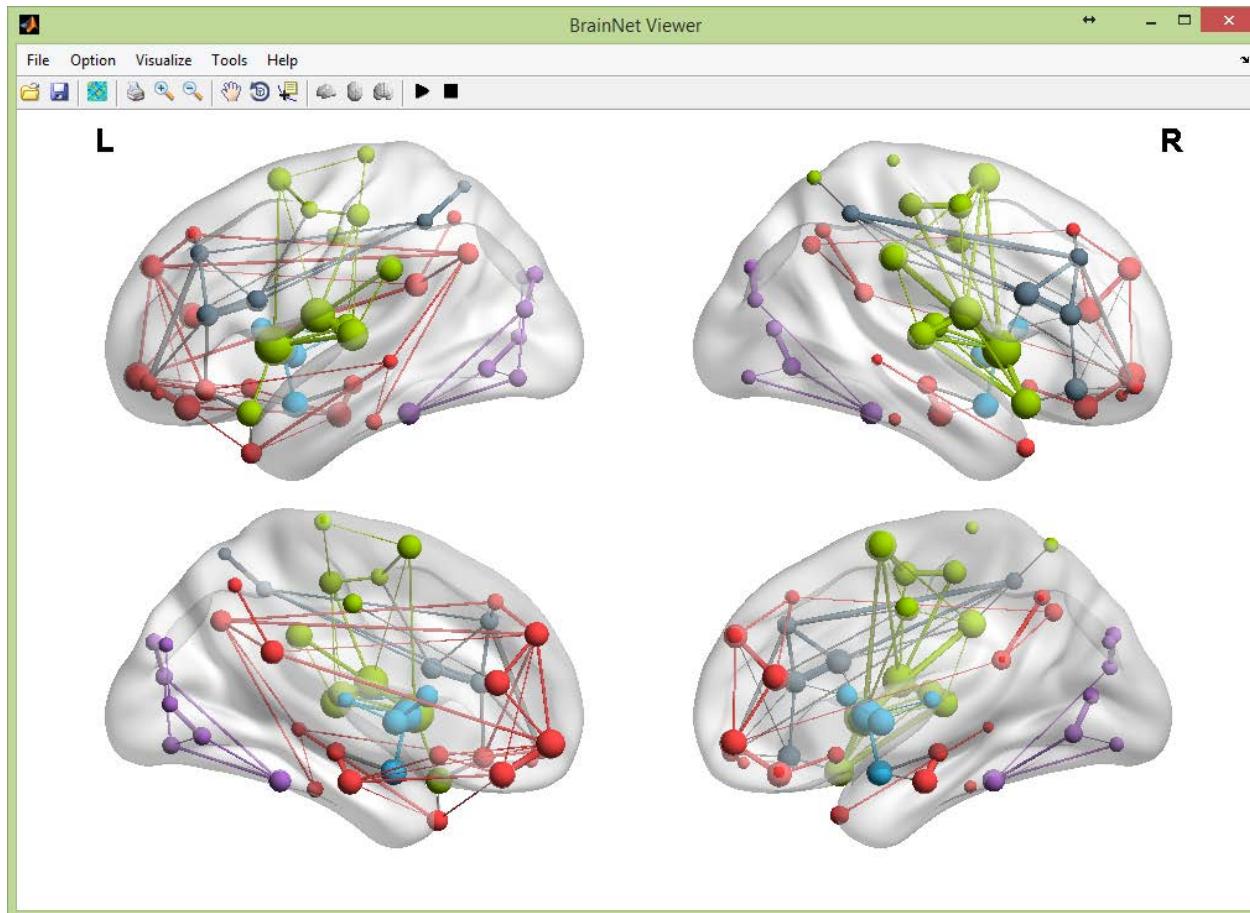
Example 4: Visualize brain network

Load a pre-saved option file



Example 4: Visualize brain network

Load a pre-saved option file

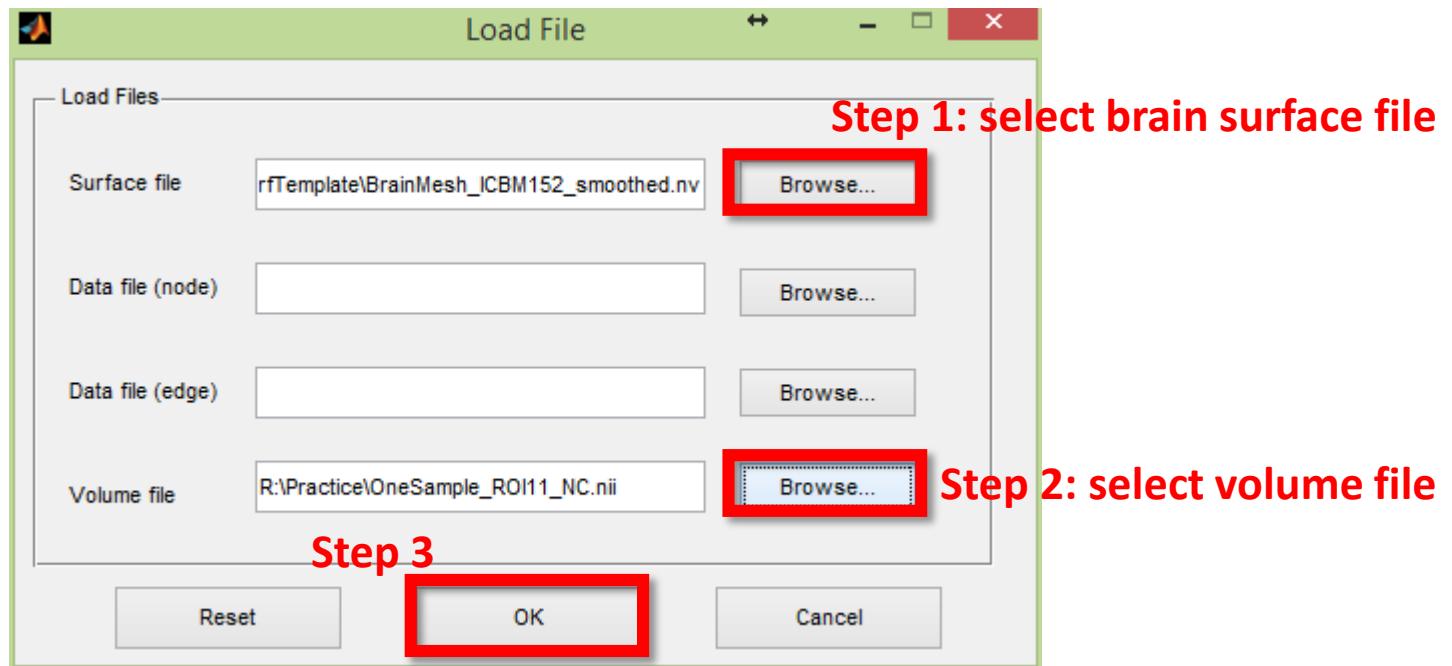


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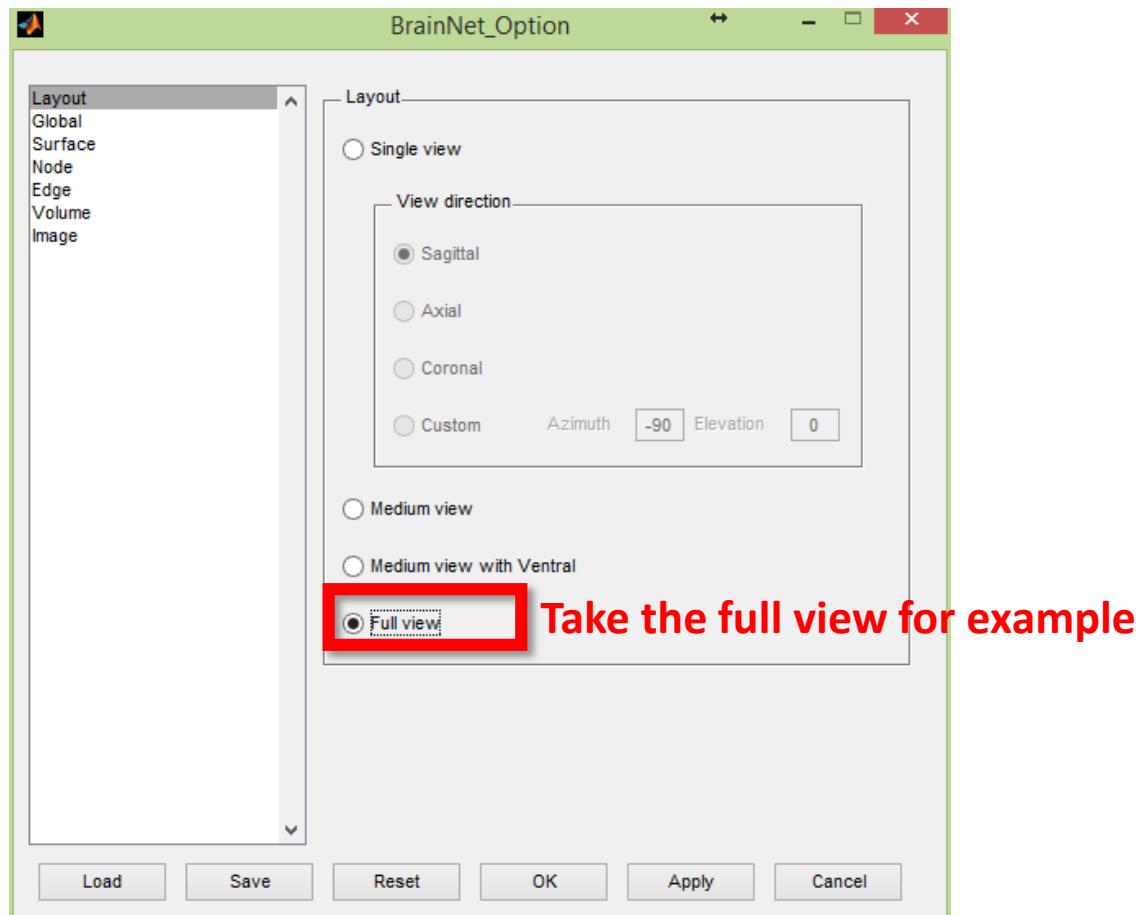
Example 5: Map statistical volume file

Load files



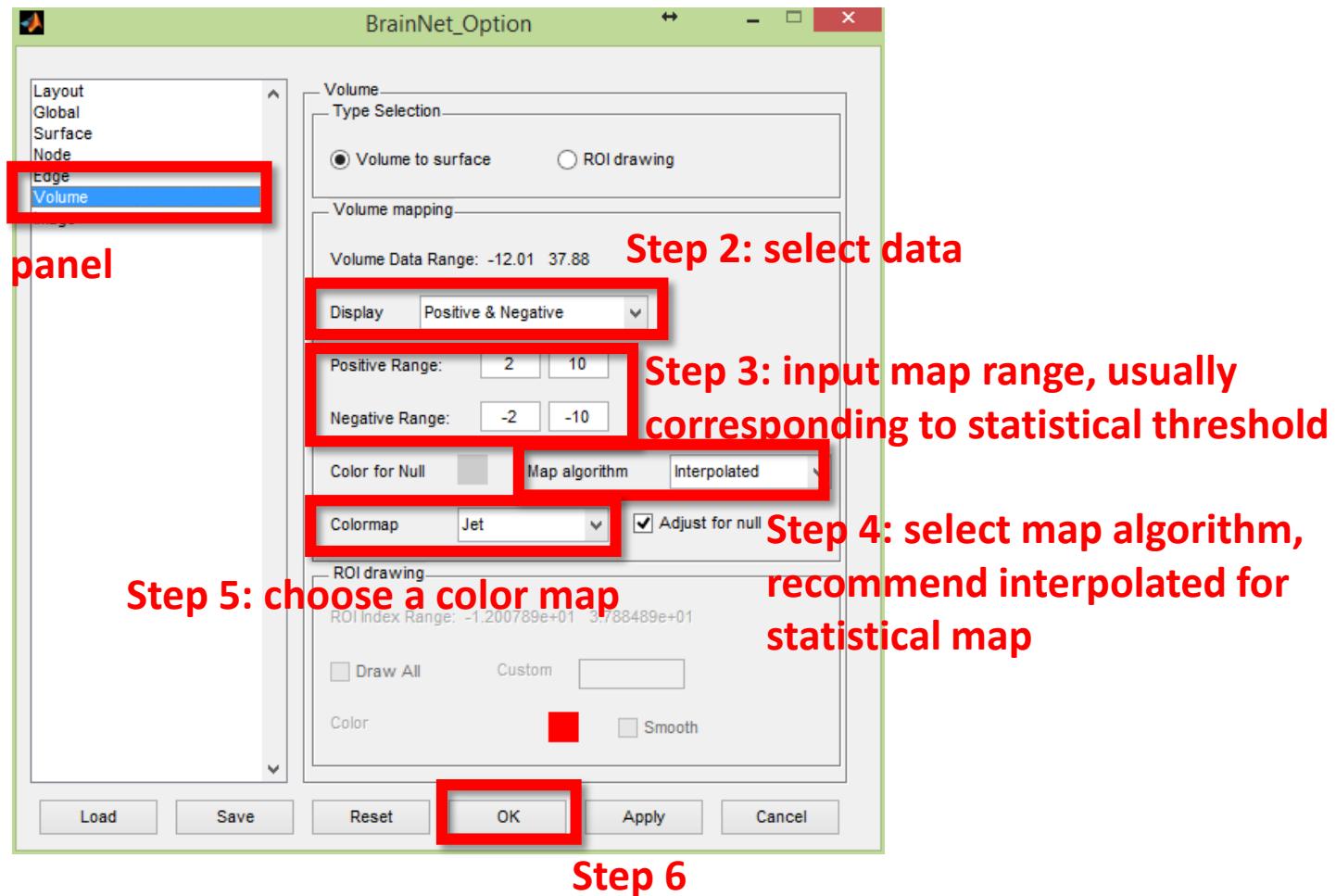
Example 5: Map statistical volume file

Configuration - Layout



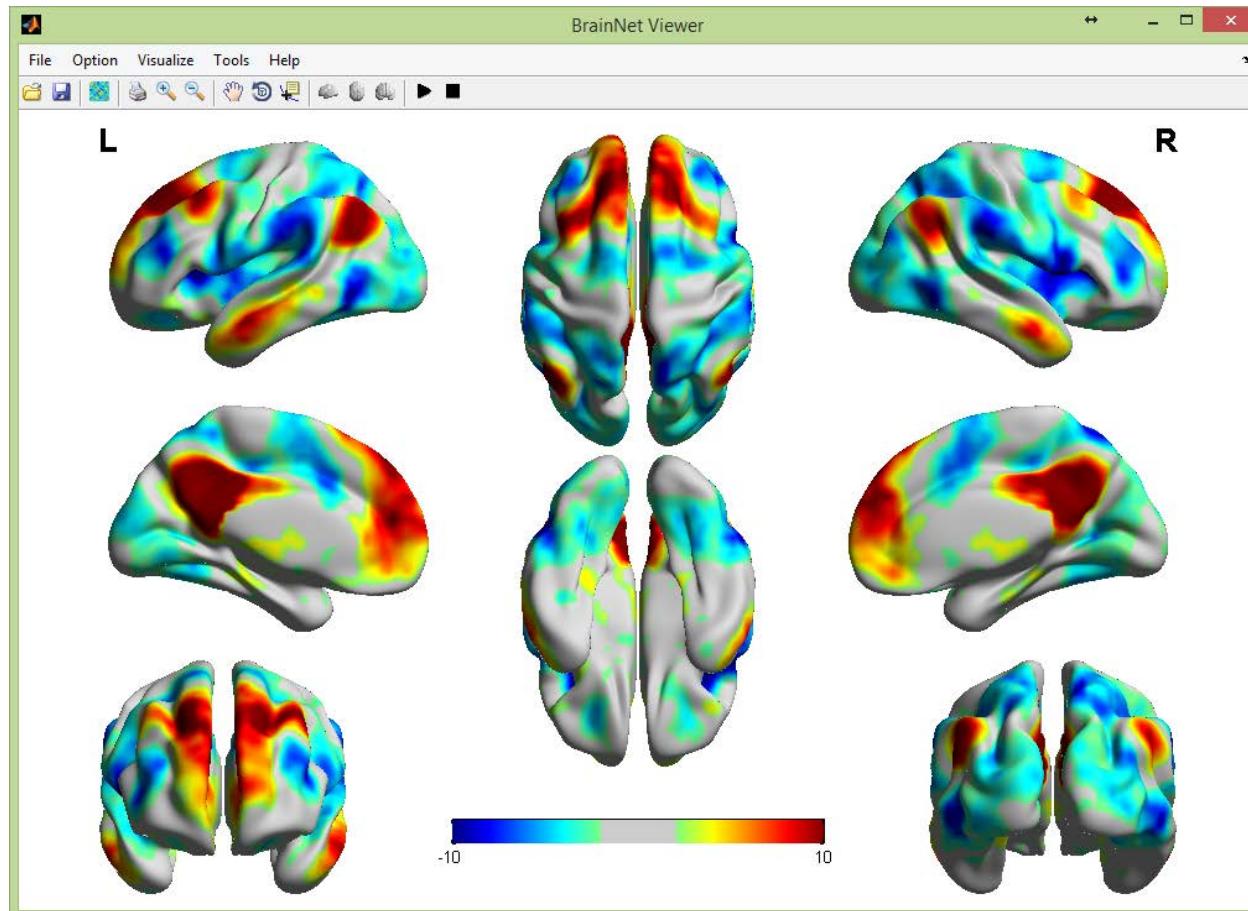
Example 5: Map statistical volume file

Configuration - Volume



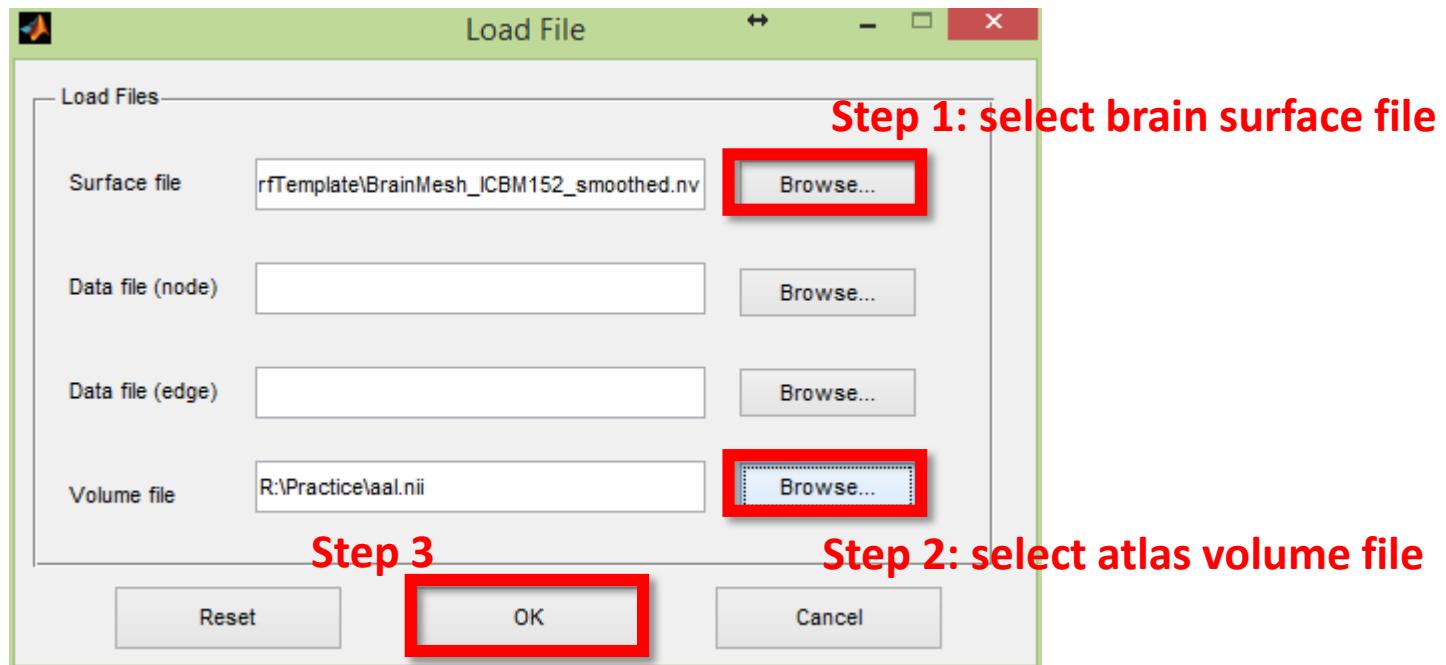
Example 5: Map statistical volume file

Figure drawing



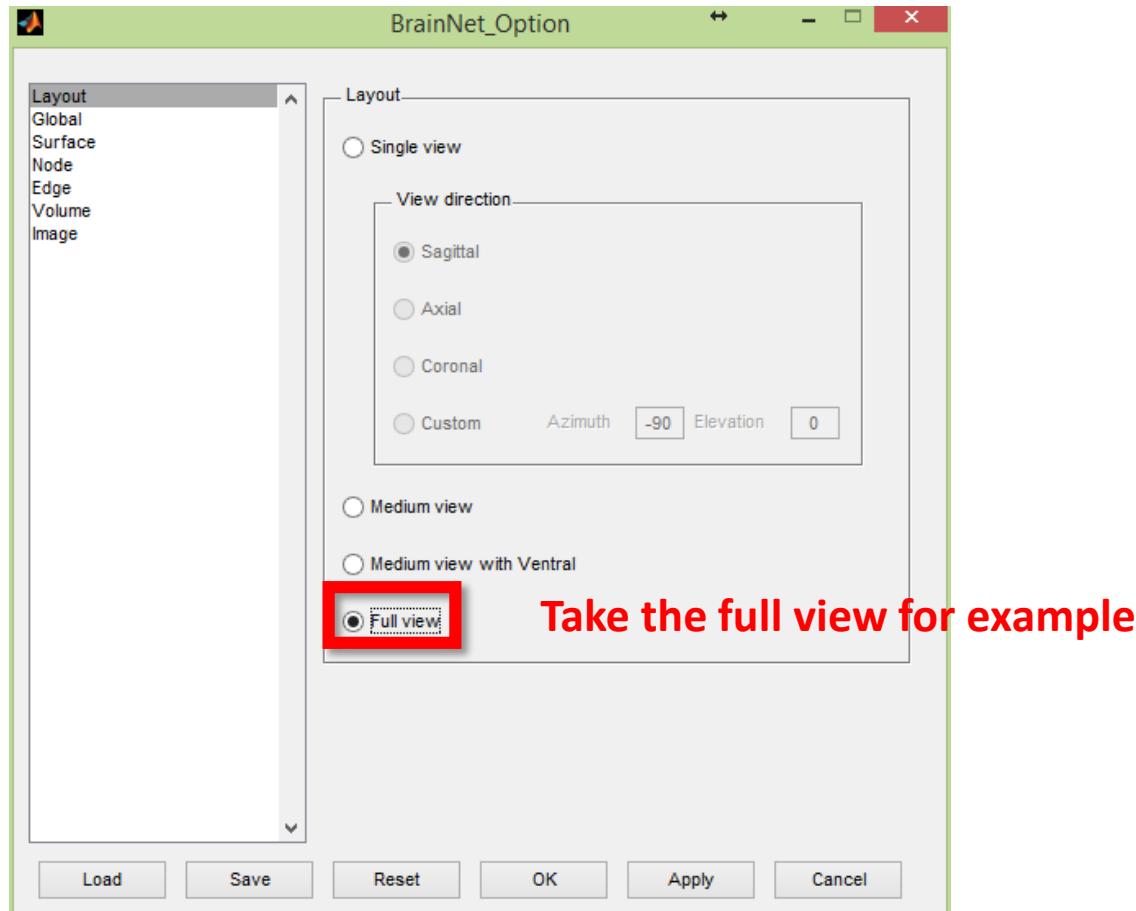
Example 5: Map atlas volume file

Load files



Example 5: Map atlas volume file

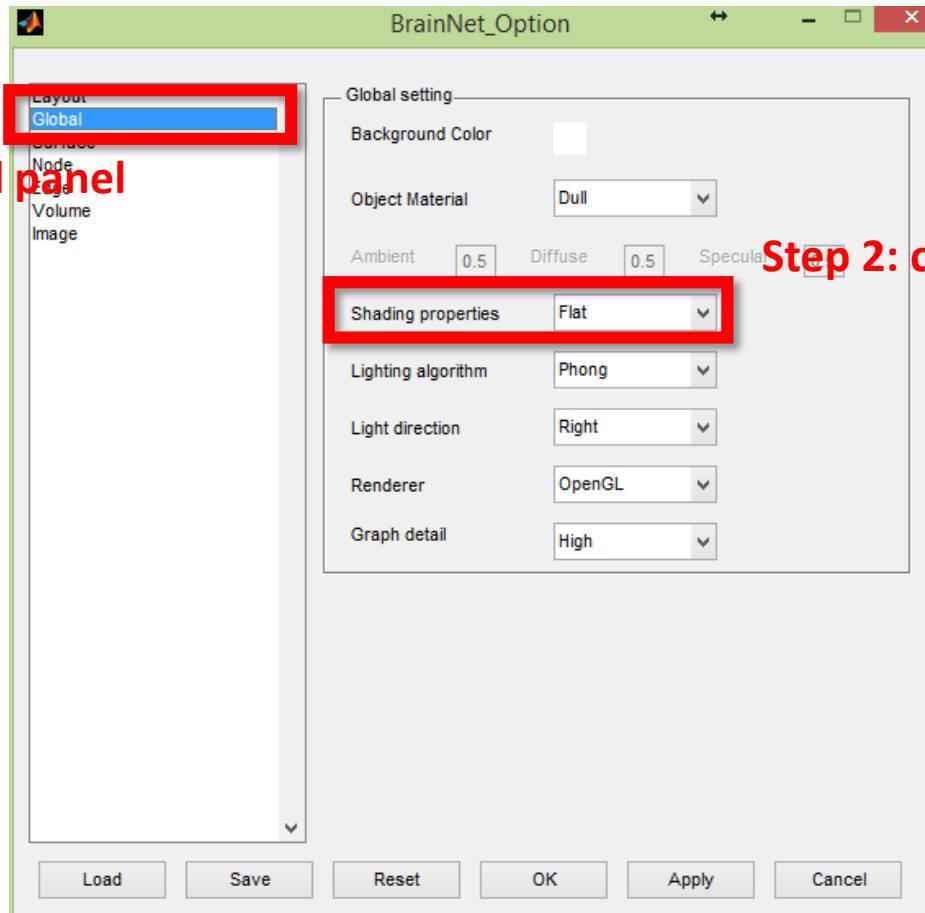
Configuration - Layout



Example 5: Map atlas volume file

Configuration - Global

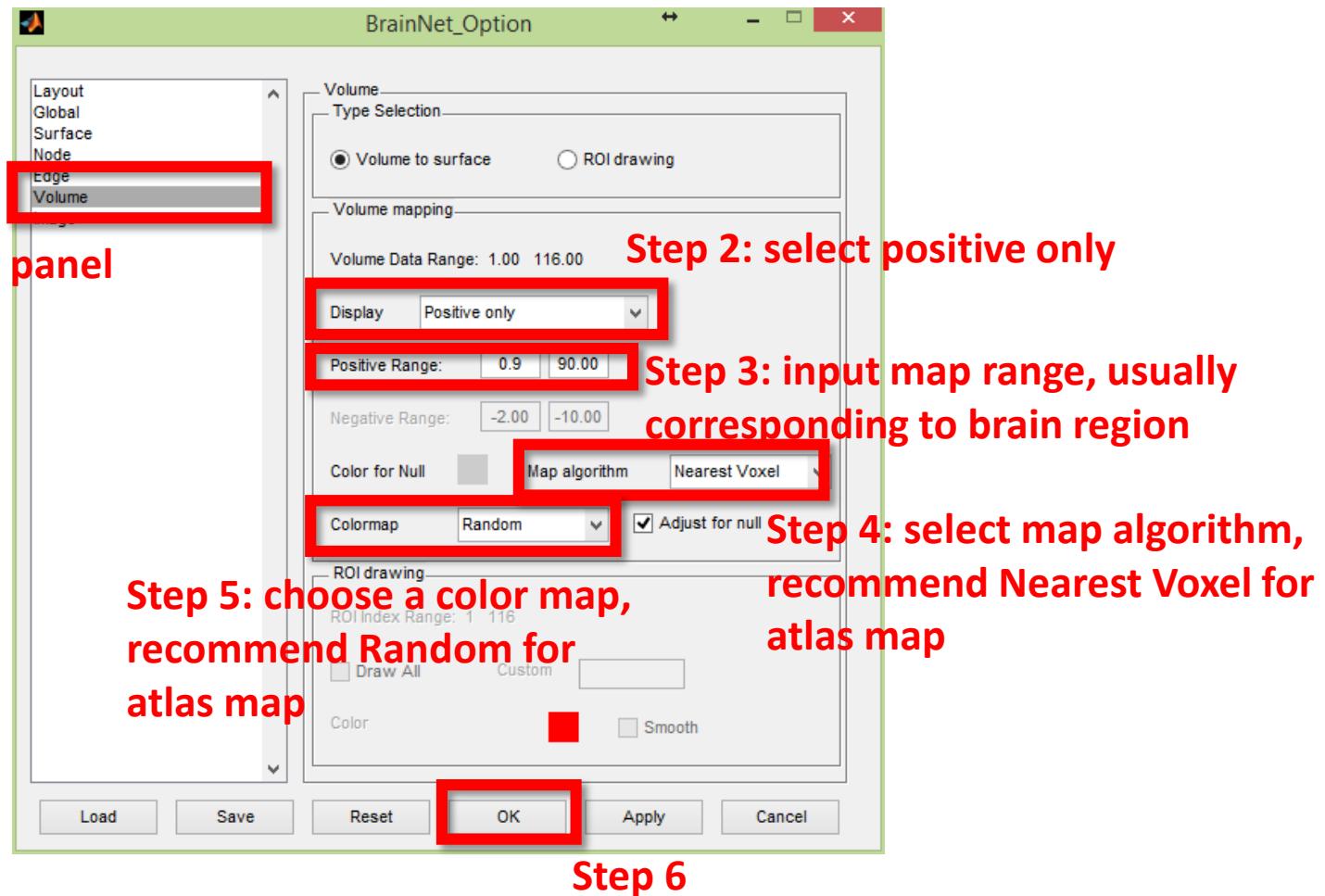
Step 1: choose Global panel



Step 2: change shading to Flat

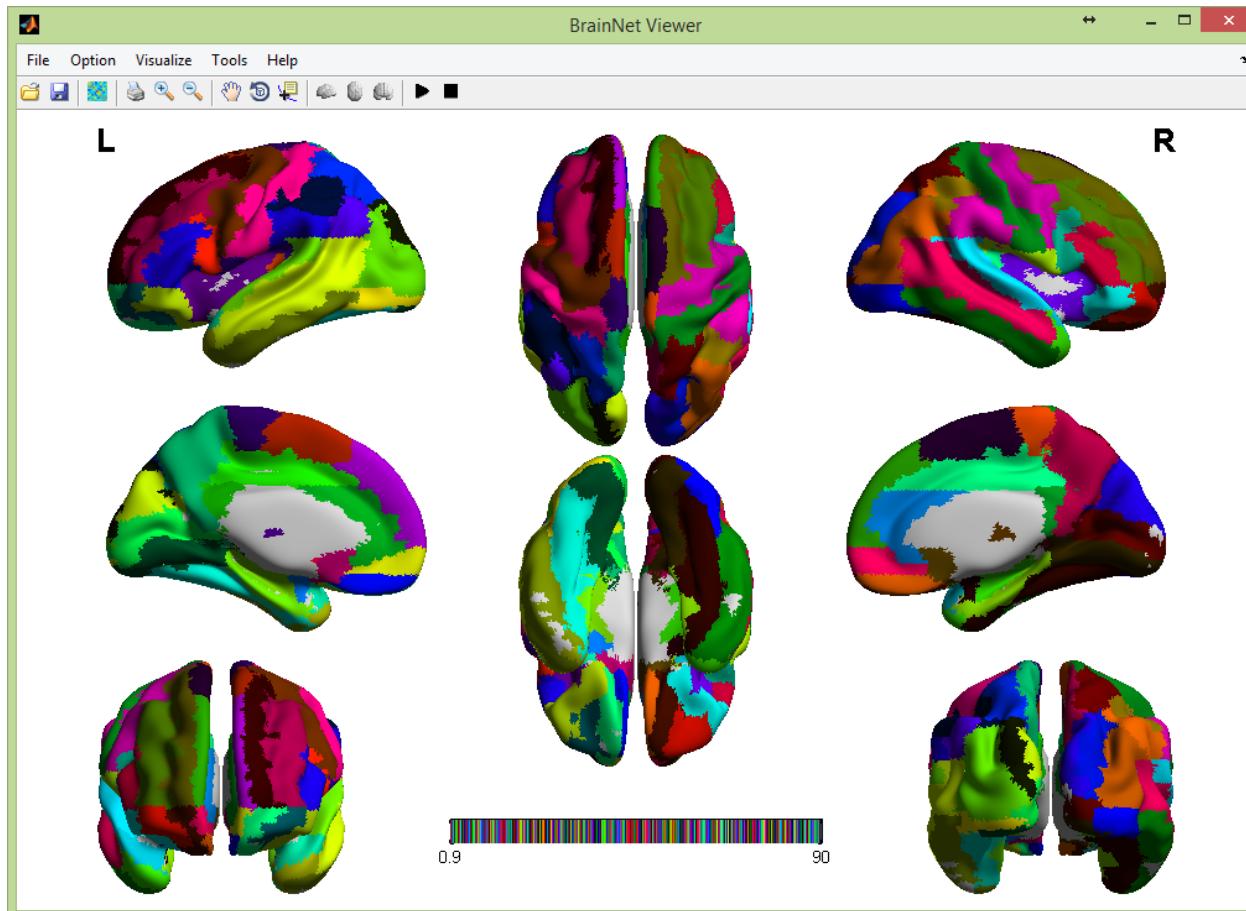
Example 5: Map atlas volume file

Configuration - Volume



Example 5: Map atlas volume file

Figure drawing

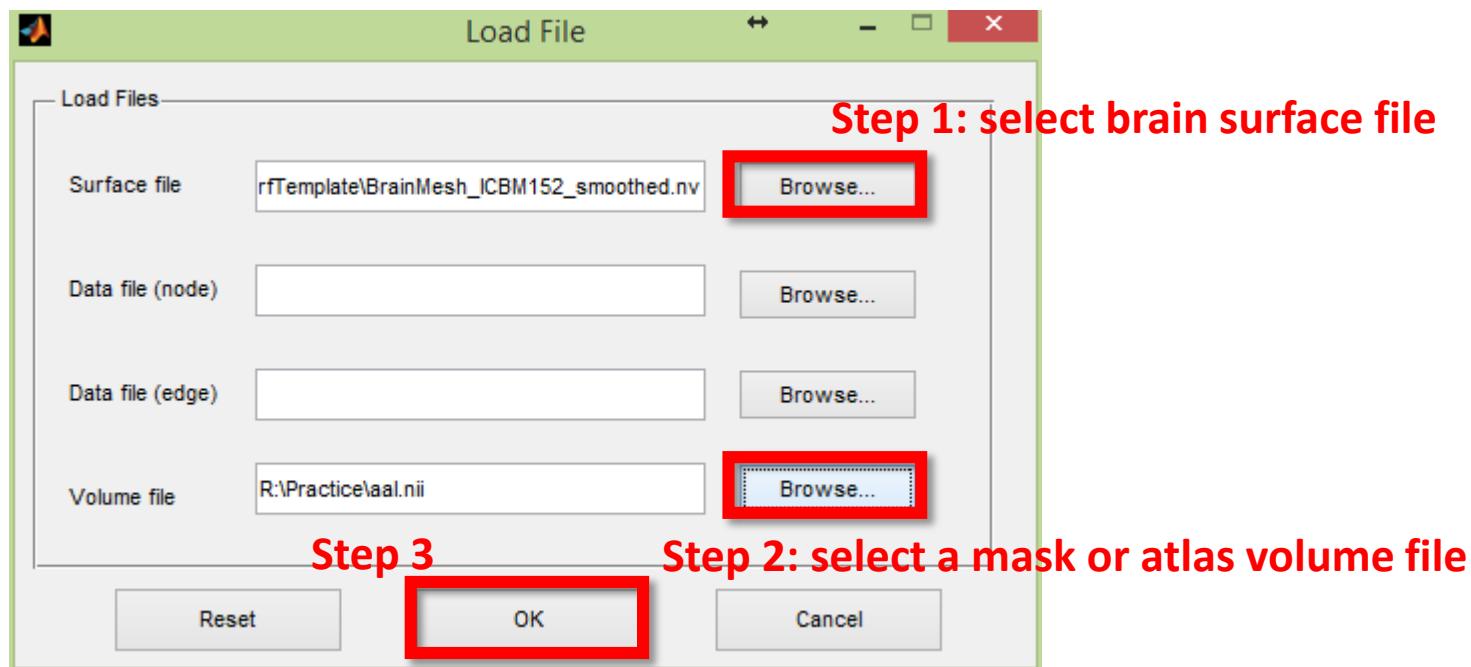


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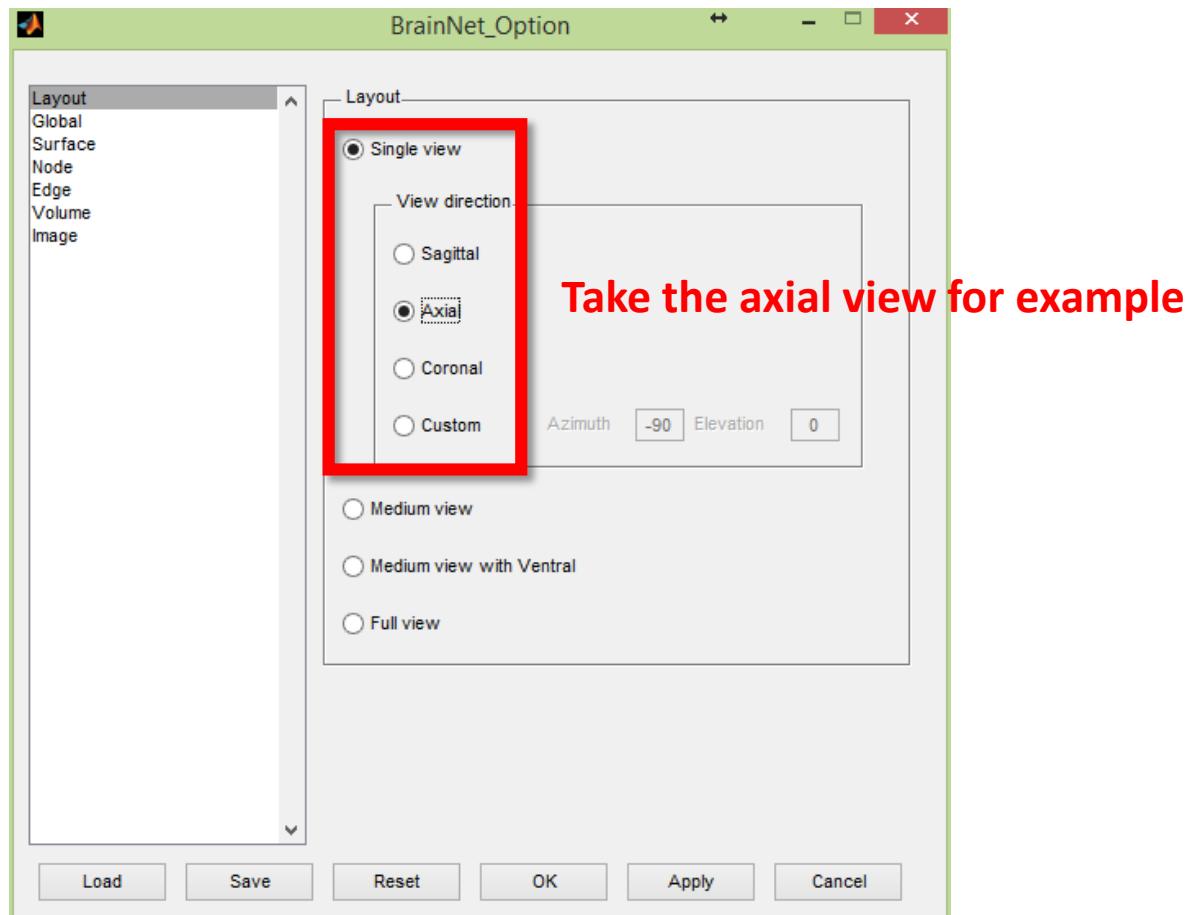
Example 6: Construct 3D ROI

Load files



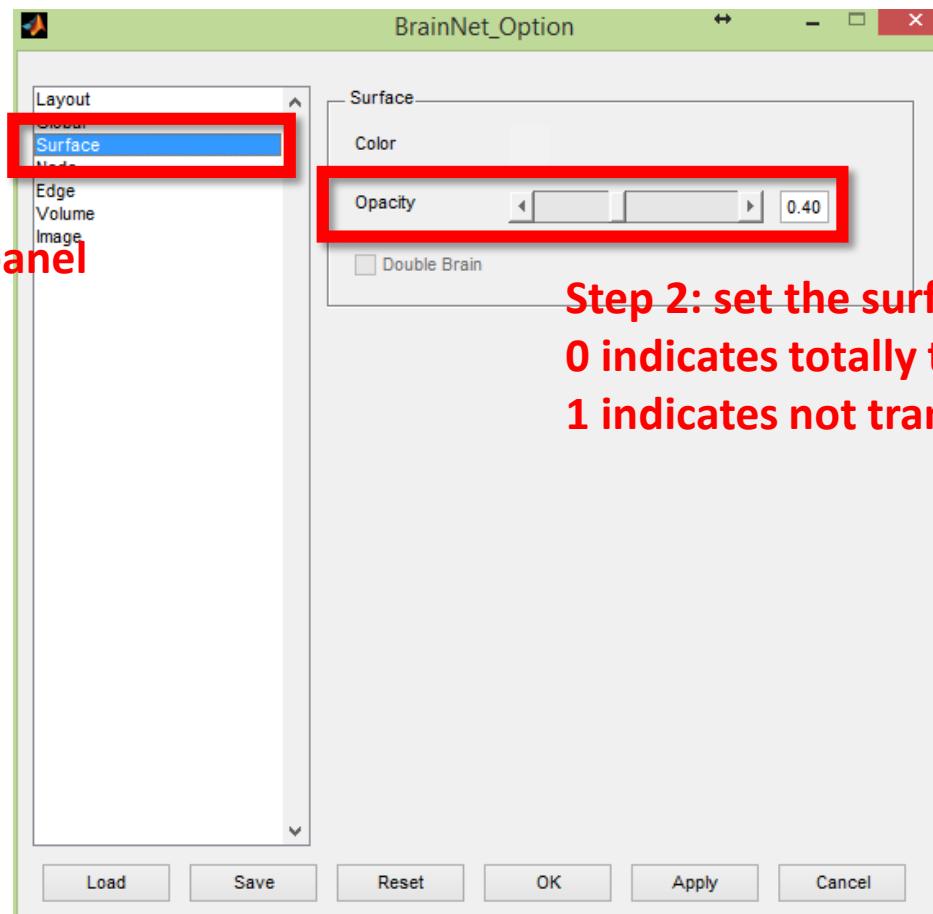
Example 6: Construct 3D ROI

Configuration - Layout



Example 6: Construct 3D ROI

Configuration - Surface

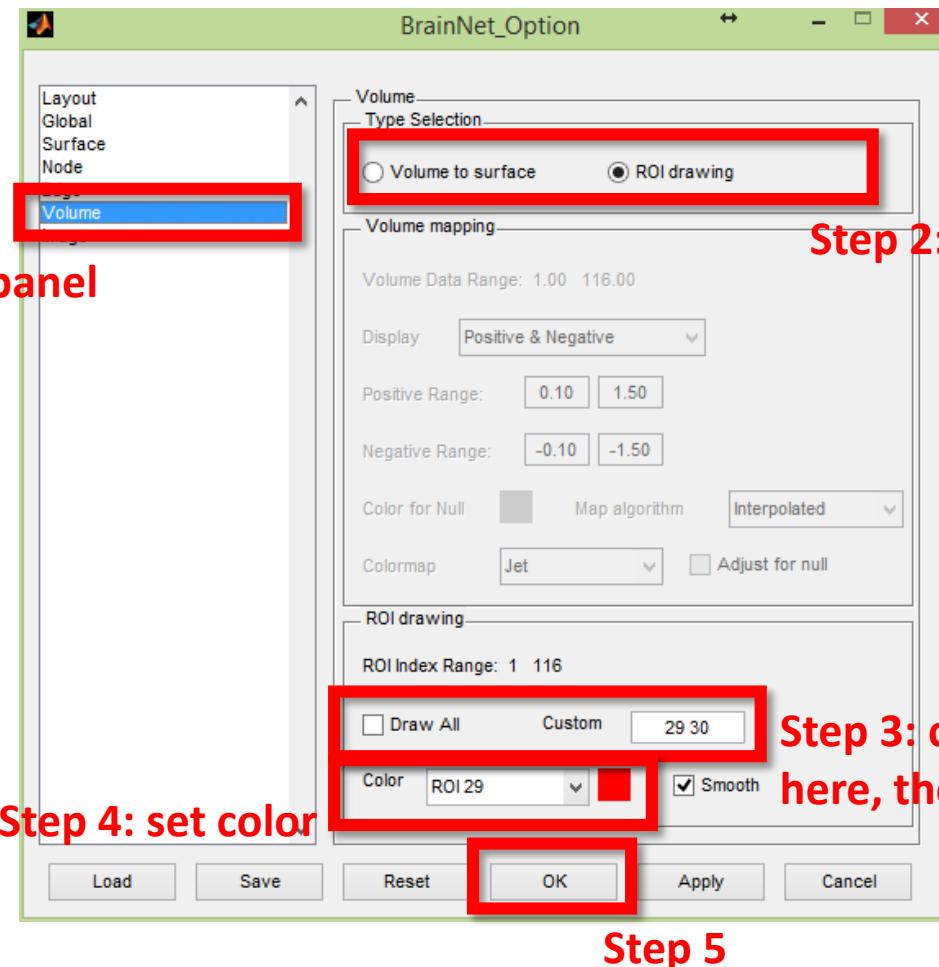


Step 1: select Surface panel

**Step 2: set the surface transparent,
0 indicates totally transparent
1 indicates not transparent**

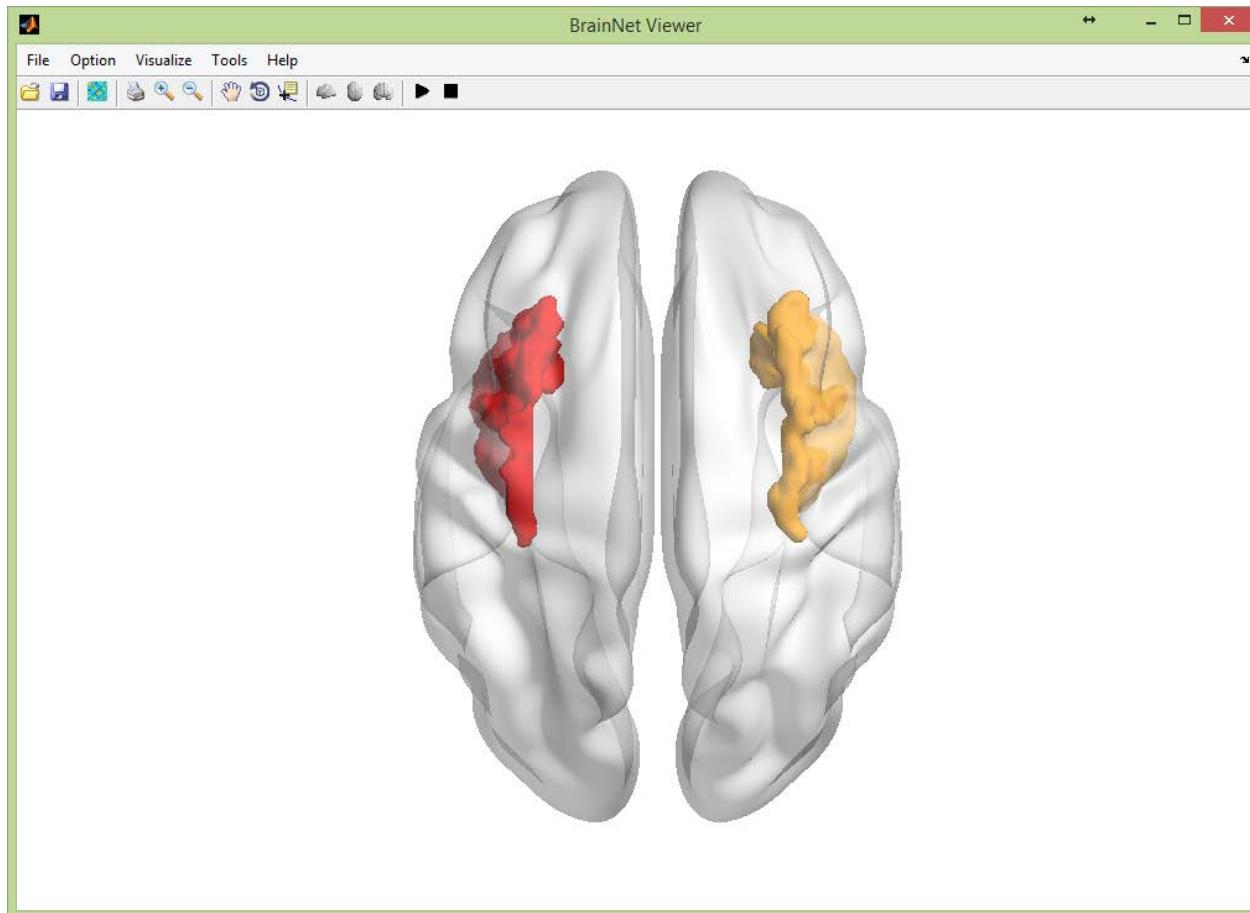
Example 6: Construct 3D ROI

Configuration - Volume



Example 6: Construct 3D ROI

Figure drawing

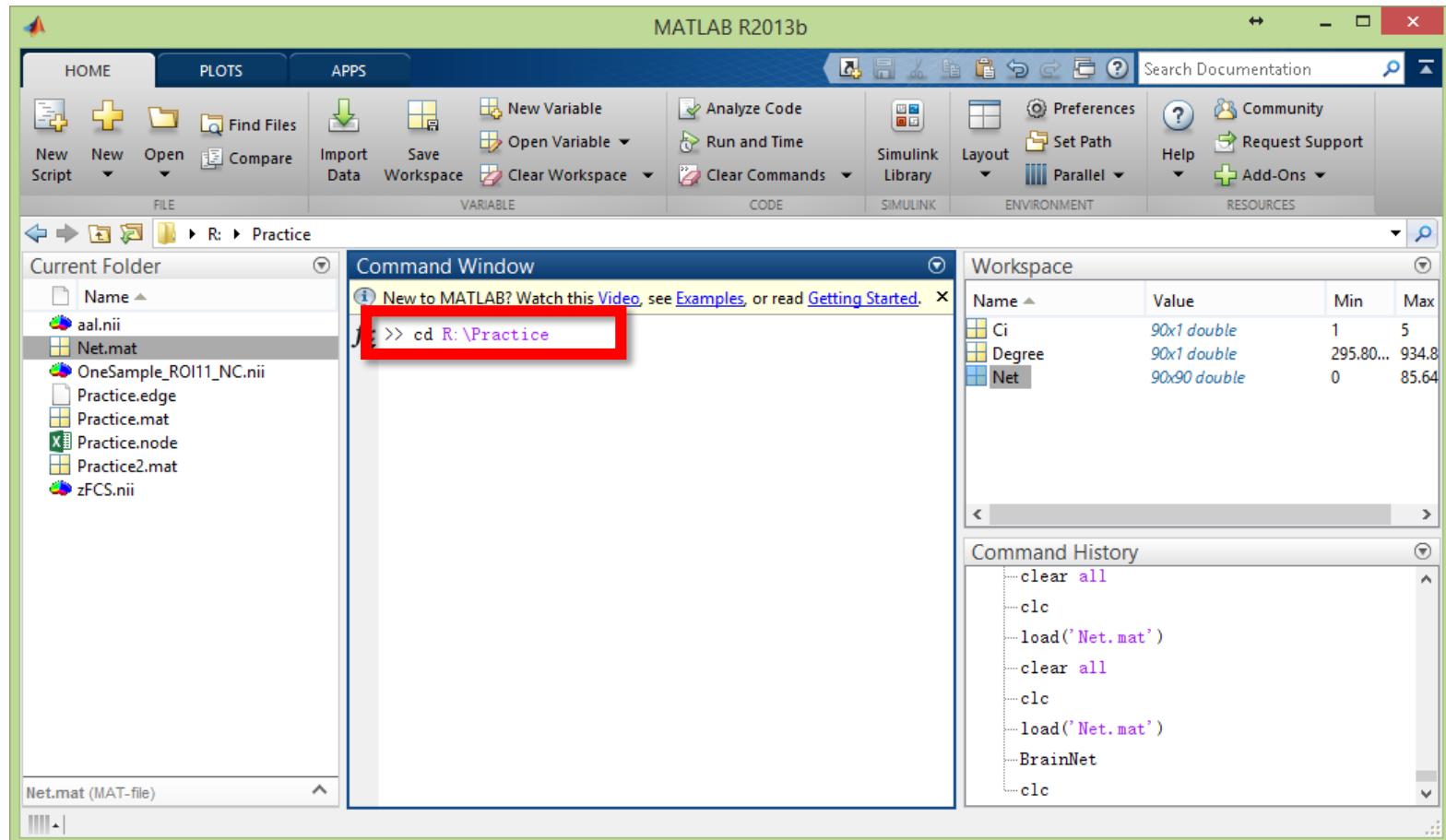


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Example 7: Use commandline

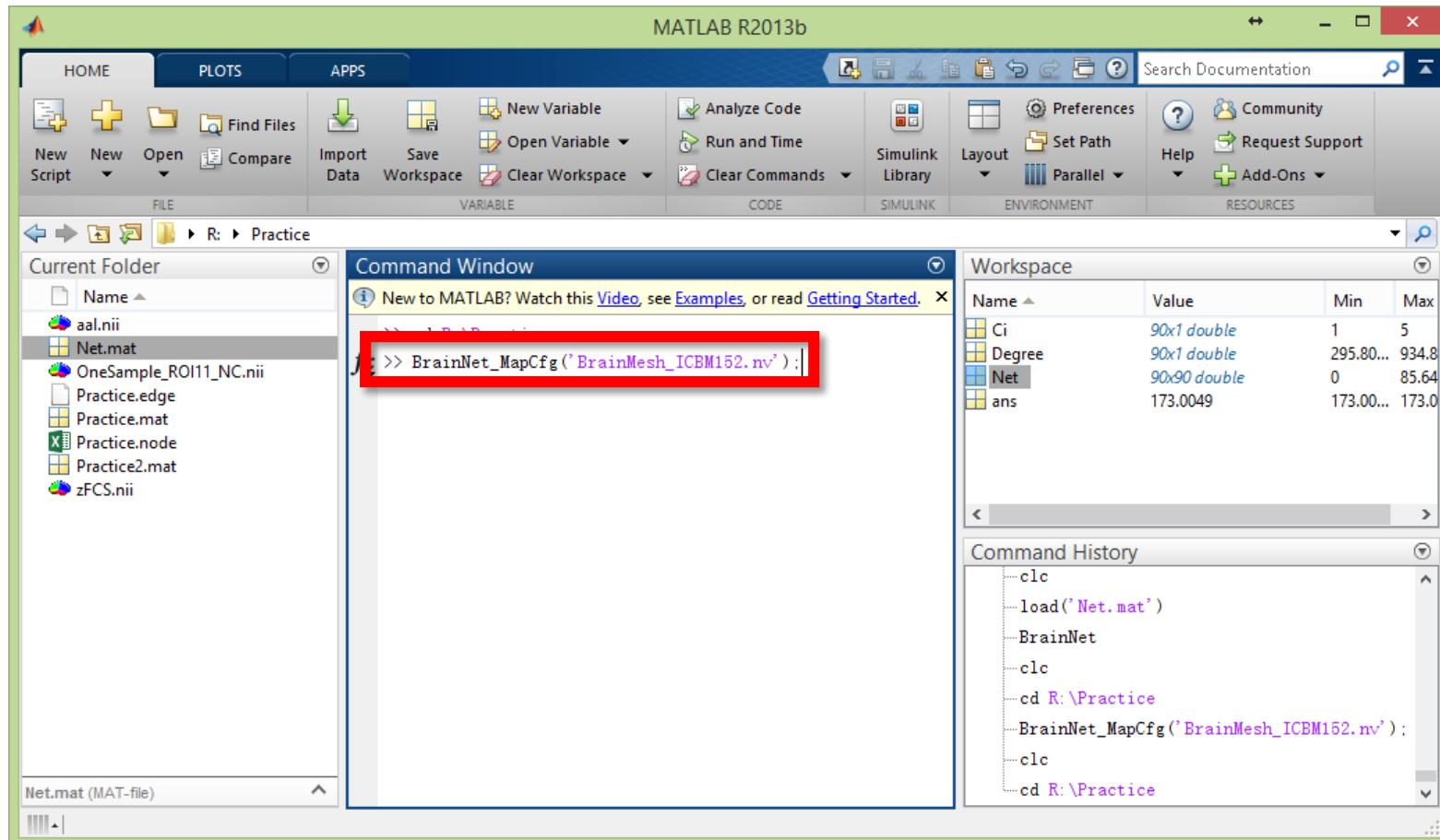
Change the directory to your file folder



Example 7: Use commandline

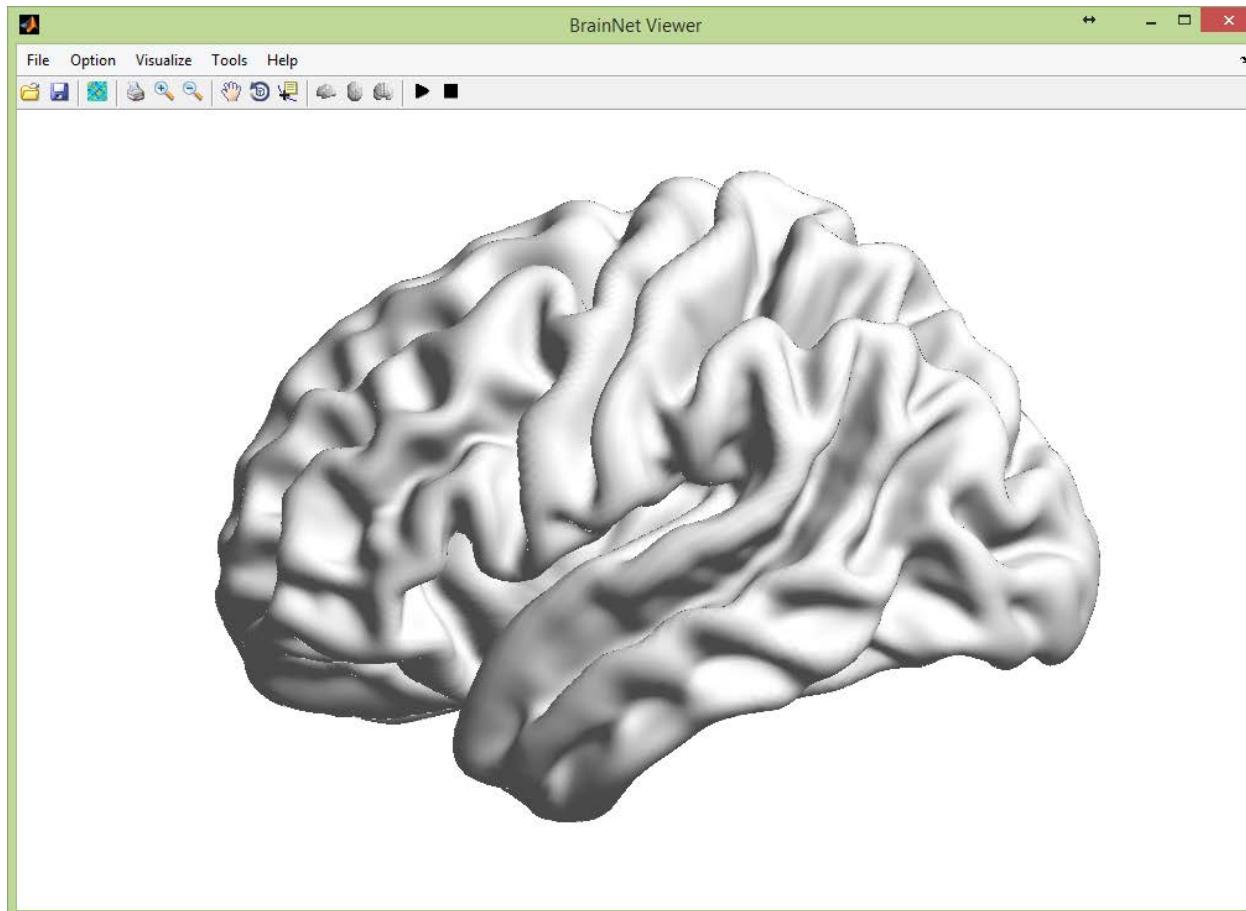
Draw a surface

Type: *BrainNet_MapCfg('BrainMesh_ICBM152.nv');*



Example 7: Use commandline

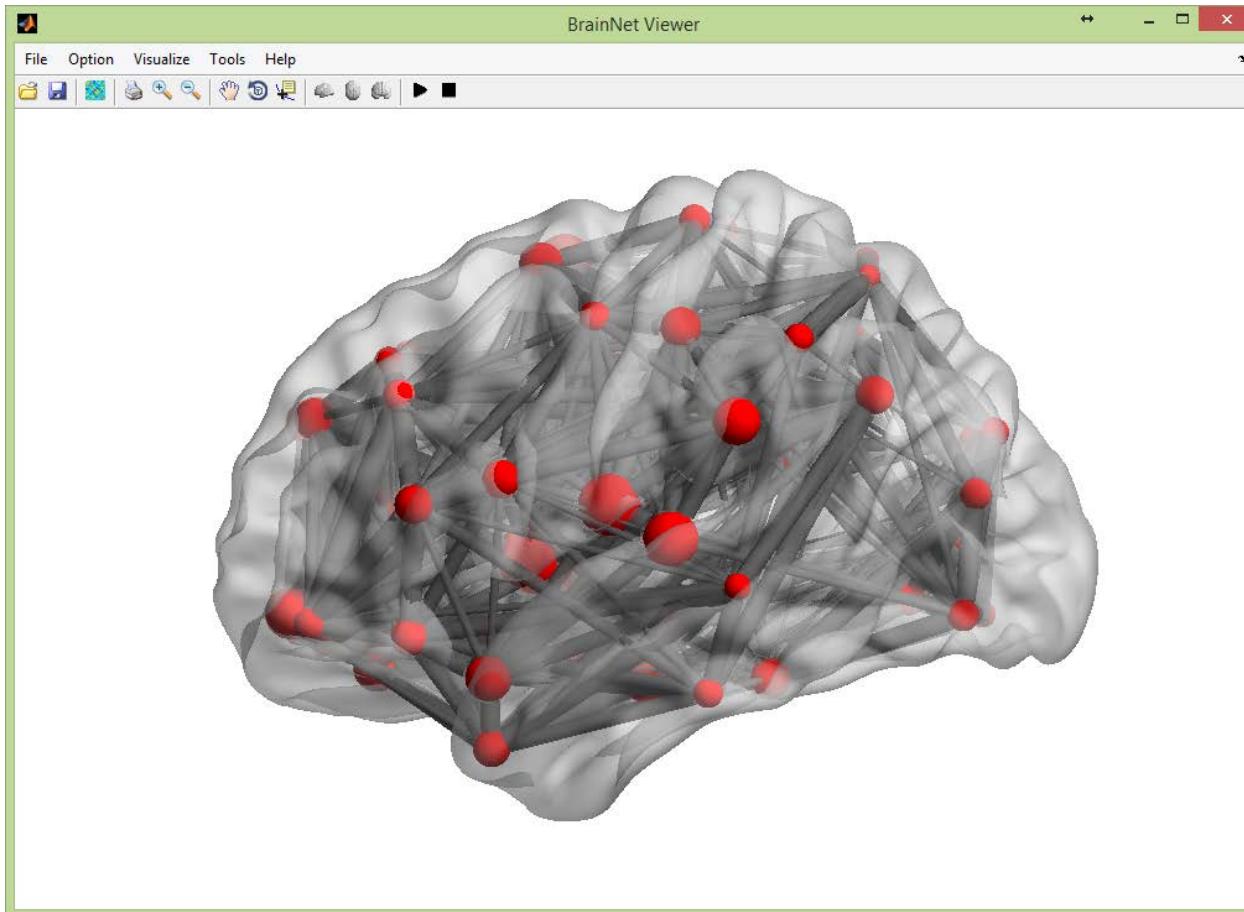
Draw a surface



Example 7: Use commandline

Draw surface, nodes and edges

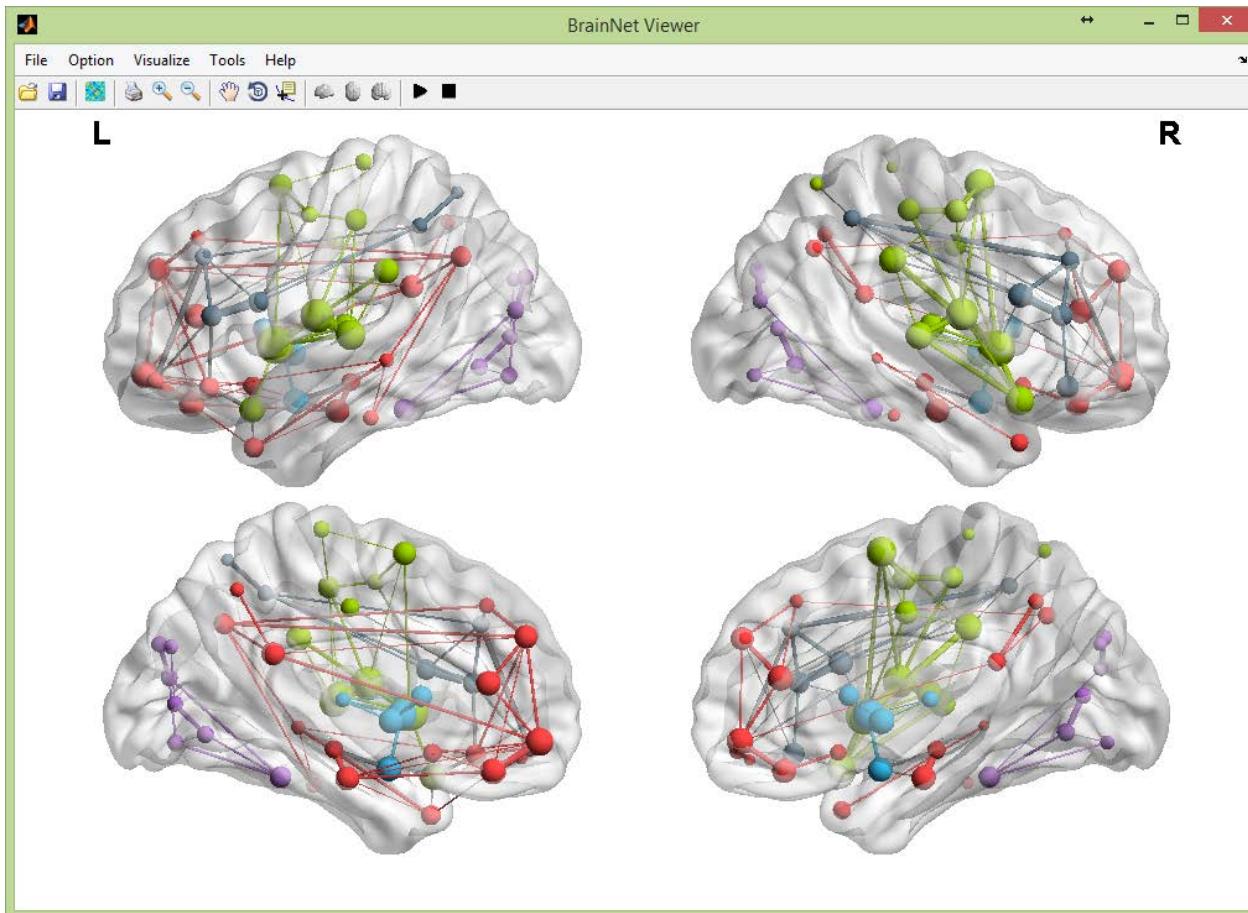
Type: *BrainNet_MapCfg('BrainMesh_ICBM152.nv', 'Practice.node', 'Practice.edge');*



Example 7: Use commandline

Draw surface, nodes and edges with a pre-saved configuration

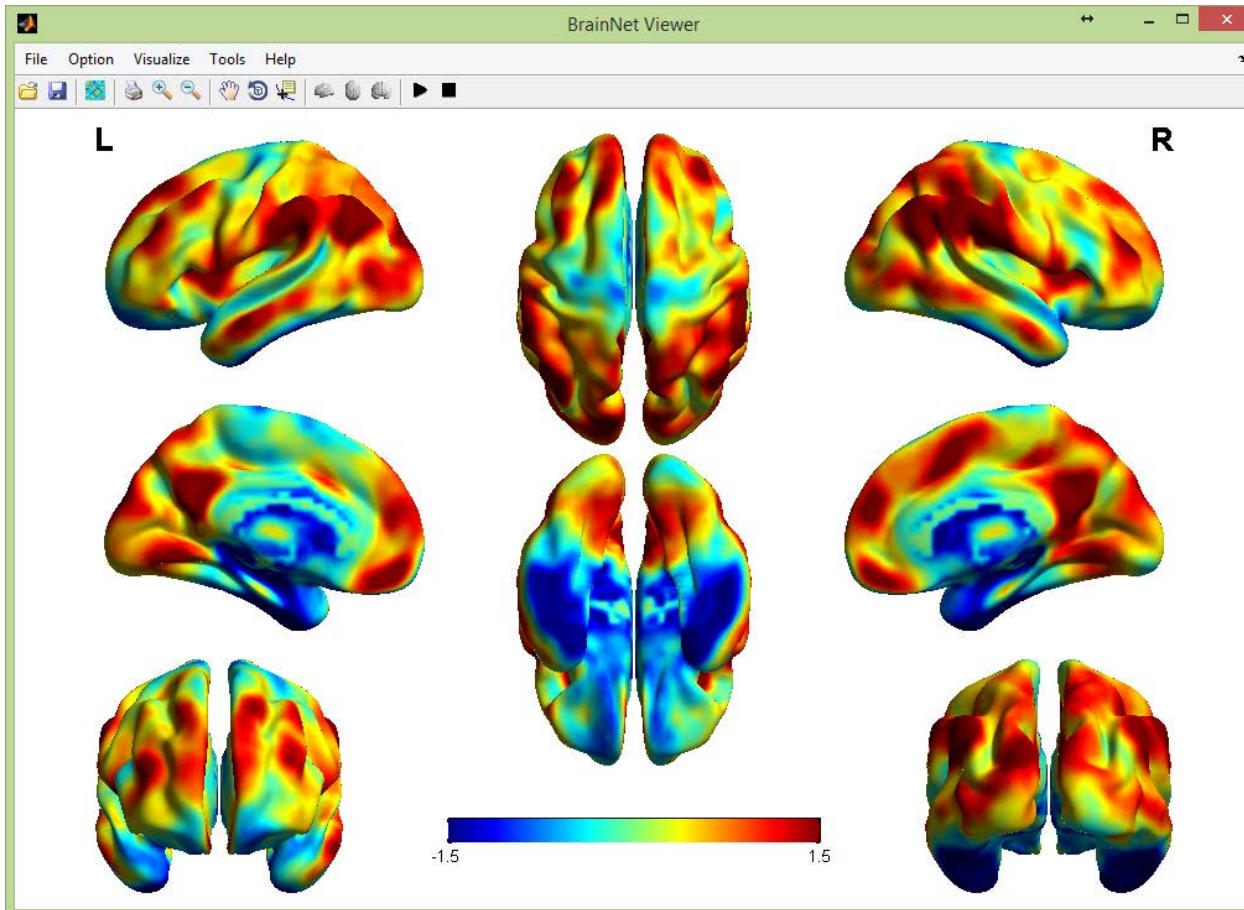
Type: *BrainNet_MapCfg('BrainMesh_ICBM152.nv','Practice.node','Practice.edge','Practice1.mat');*



Example 7: Use commandline

Draw volume mapping with pre-saved configuration

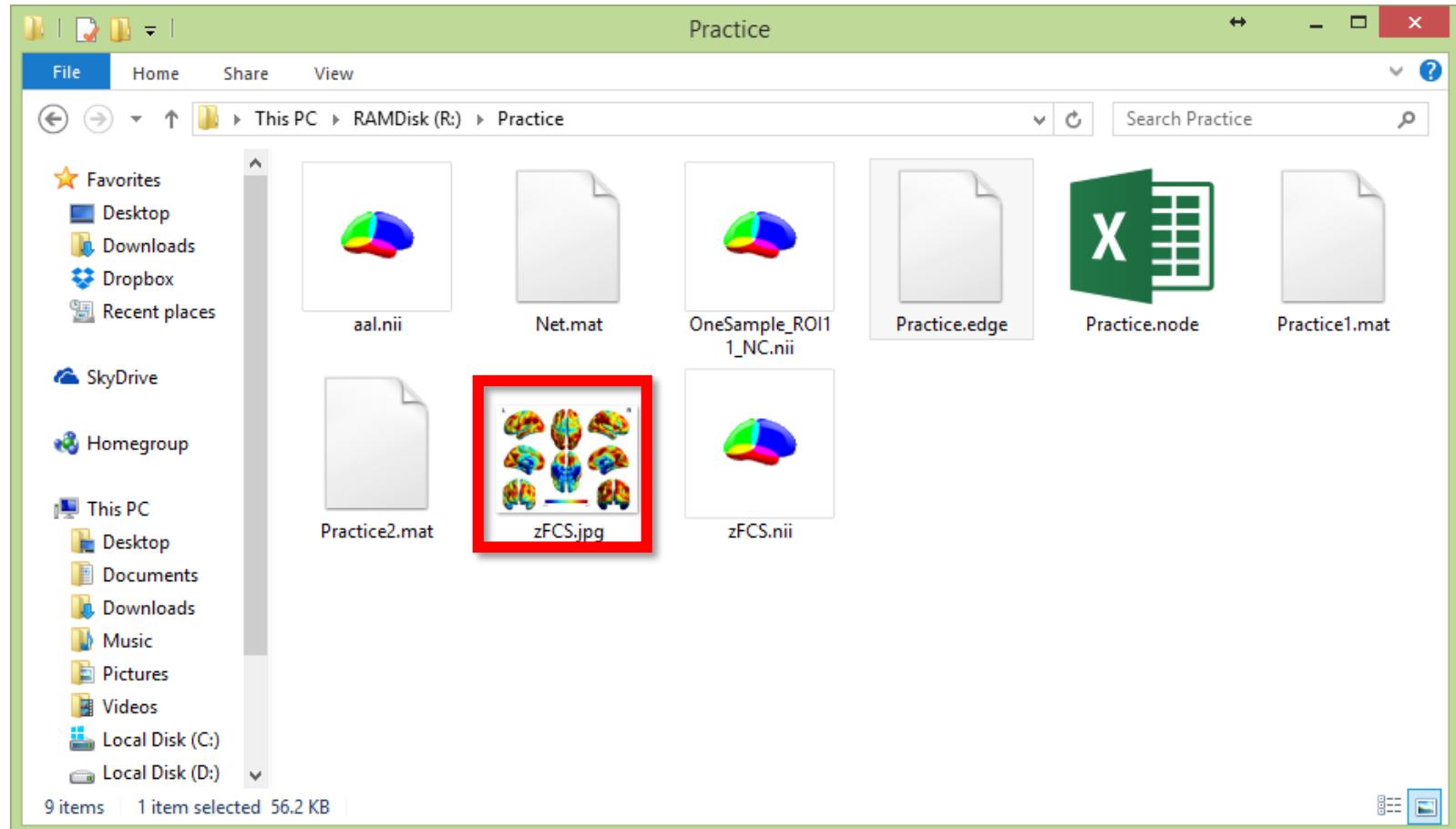
Type: *BrainNet_MapCfg('BrainMesh_ICBM152_smoothed.nv', 'zFCS.nii', 'Practice2.mat');*



Example 7: Use cmdline

*Draw volume mapping with pre-saved configuration,
and save image*

Type: `BrainNet_MapCfg('BrainMesh_ICBM152_smoothed.nv', 'zFCS.nii', 'Practice2.mat', 'zFCS.jpg');`



Thanks!!