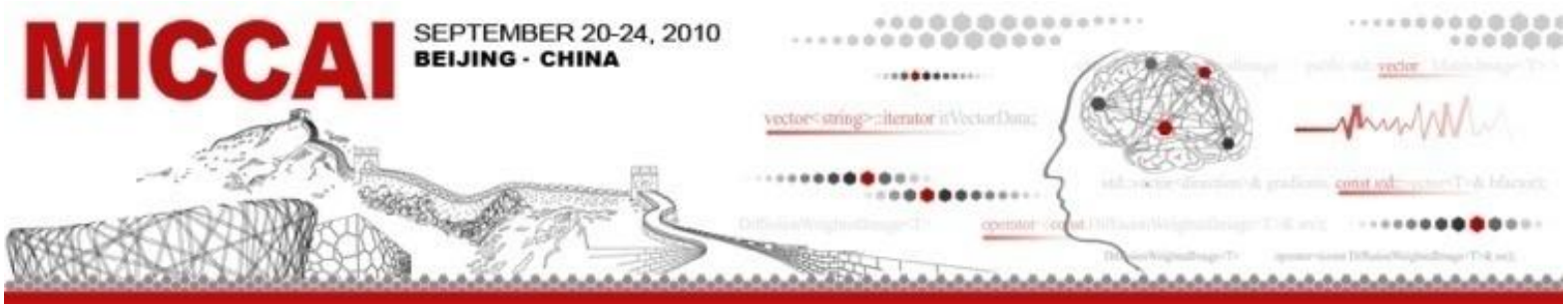


The NA-MIC Programming Environment

Sonia Pujol, Ph.D.

Surgical Planning Laboratory

Harvard University

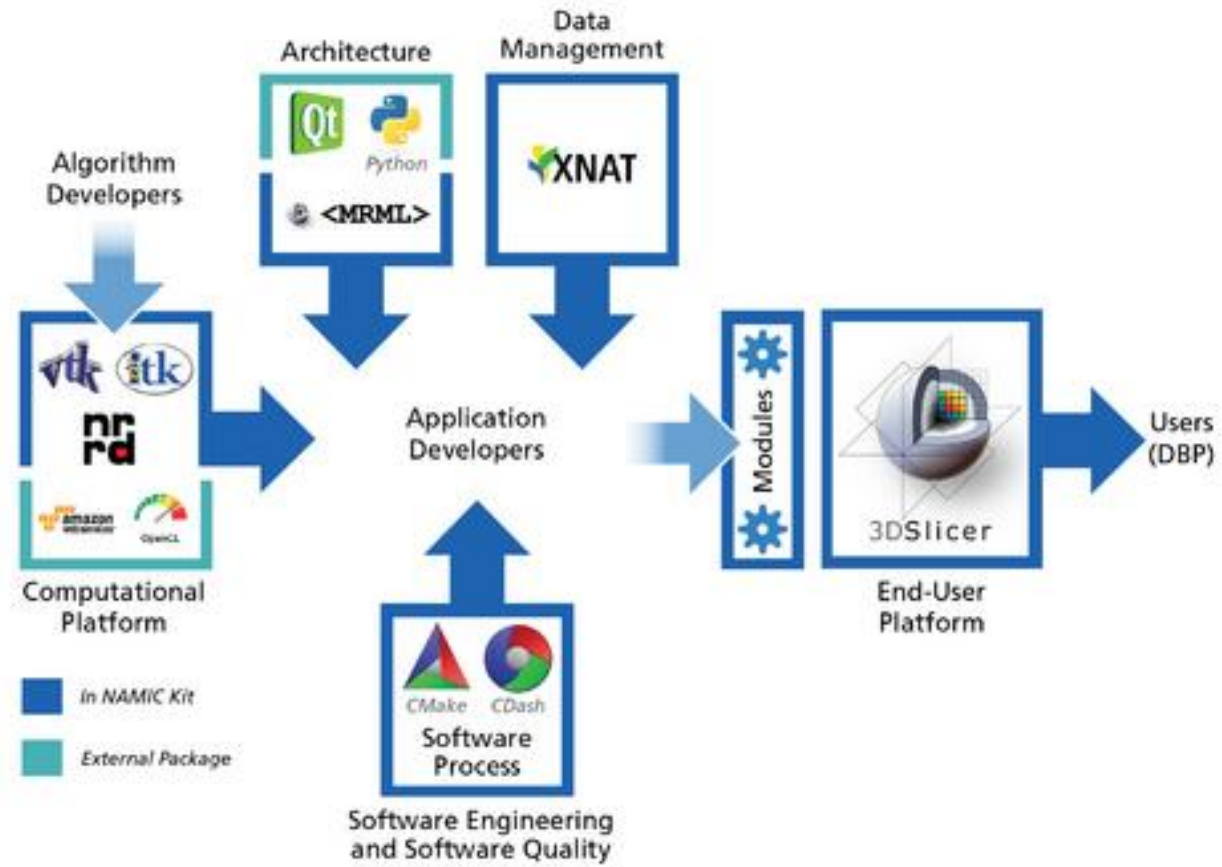
The NA-MIC Kit

NA-MIC Kit Goals

- Software and Methodologies for Medical Image Computing
  - Facilitate Research
  - Promote Interoperability
- Stable, Cross-Platform Run Time Environment
  - Full Set of Core Features
  - Avoid Duplicated Effort
- Flexible Module Architecture
  - Plug-ins should be As Simple As Possible

Slide courtesy of Jim Miller, Ph.D.

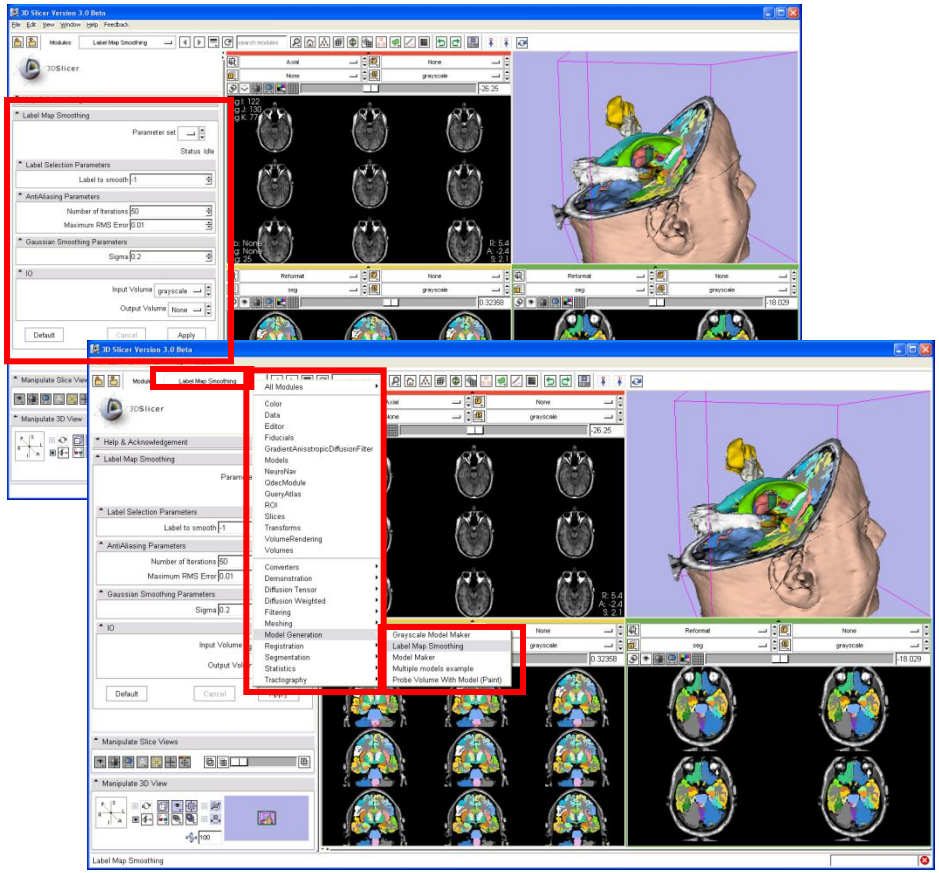
The NA-MIC Kit integration



3D Slicer

- An end-user application for image analysis
- An open-source environment for software development
- A software platform that is both easy to use for clinical researchers and easy to extend for programmers

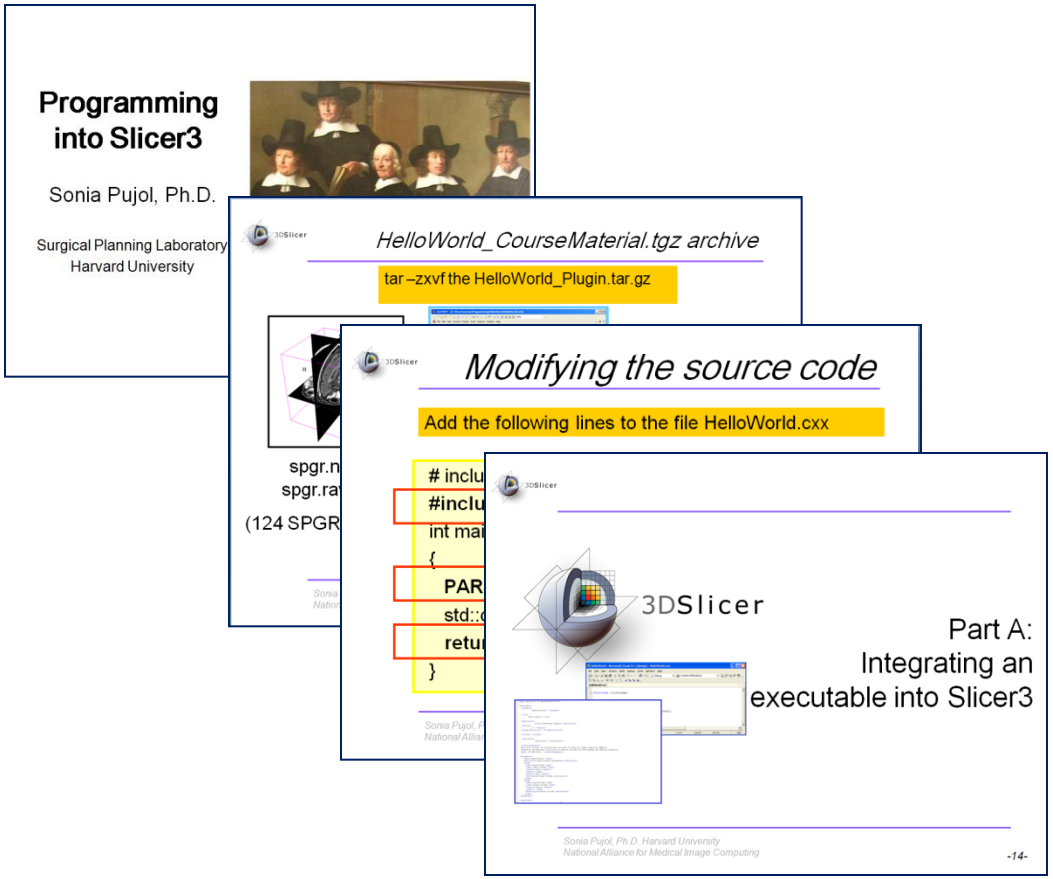
Modules Types



- Built-in modules
- Loadable modules
- Scripted modules
- Command line modules

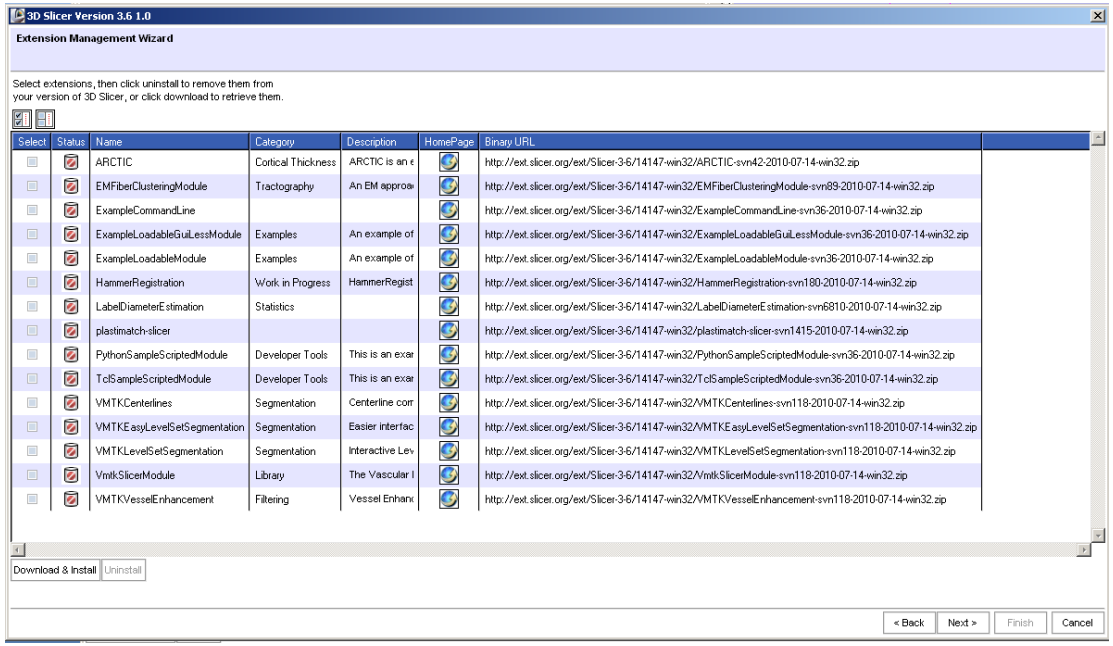
Images courtesy of Jim Miller, Ph.D.

CLI Integration: Hello World Course



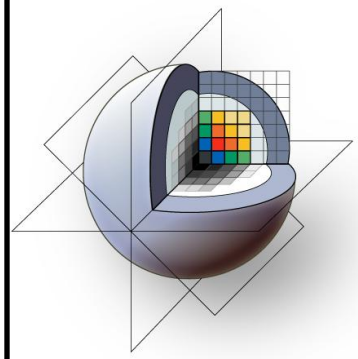
Programming course on the mechanism to plug-in an external program into Slicer

Going Further: Extensions



- Individual identity of modules
- Allow users to assemble their own set of tools
- Easy to download compatible extensions

Network Communication



3DSlicer

OpenIGTLink

Images, transforms,
scanner controls …

Commercial Navigation System (e.g BrainLab) or your tool

Image courtesy of Steve Pieper, Ph.D.

Batch Processing

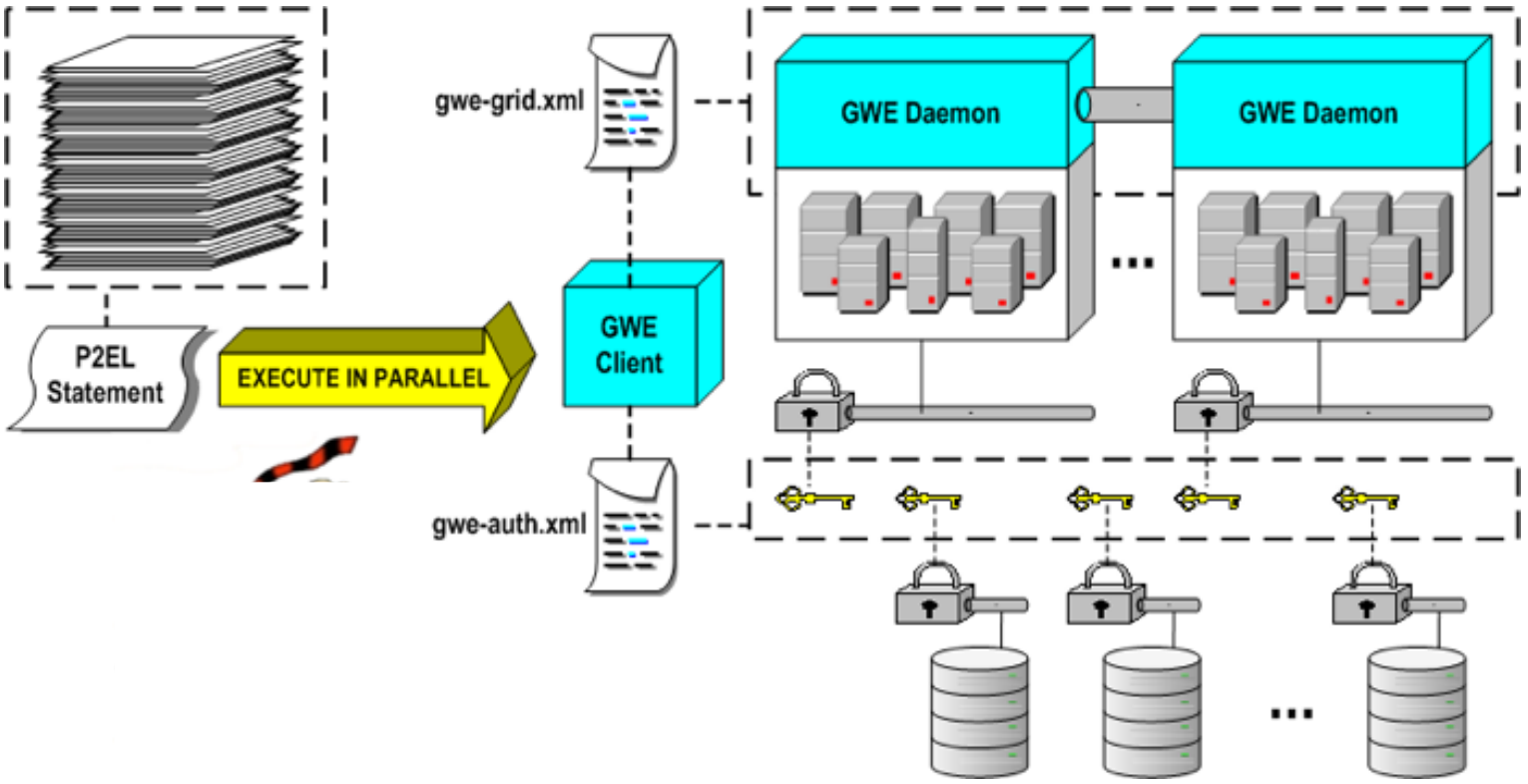


Image courtesy of Marco Ruiz, Ph.D.
http://www.gridwizardenterprise.org/

Parameter Space Exploration

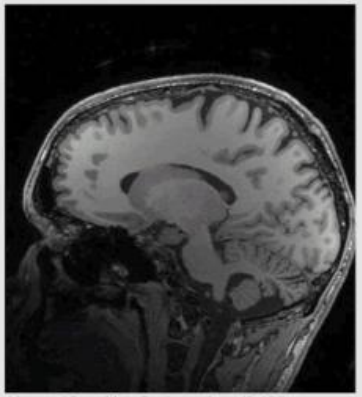
Lock	Field	Selection/ Variants	Value Selection	Value
☐	Record Number	925/1086		925
☐	Run	925/1086		925
	SLICER_HOME	1/1		/Users/admin/GSlicer3-3.3-alpha-2009-02-01-darwin-x86-0.7.2.alpha
	volumes_files_dir	1/1		/demos.1/gwe/data
	volumes_name_regexp	1/1		.*[.](nrrd|nhdr)
☐	volumes_filenames	1/2		/demos.1/gwe/data/brain.nrrd
☐	axis	3/3		2
☐	plane	101/181		120
☐	sliceGenerationCommand_FILE_SLICE	925/1086		 /demos.1/gwe/data/brain.nrrd-out/2-120.png
☐	sliceGenerationCommand	925/1086		mkdir -p /demos.1/gwe/data/brain.nrrd-out && /Users/admin/GSlicer3-3.3-alpha-2009-02-01-darwin-x86-0.7.2.alpha/Slicer3 --launch unu slice -a 2 -p 120 -i /demos.1/gwe/data/brain.nrrd -o /demos.1/gwe/data/brain.nrrd-out/2-120.png.tmp.nrrd && /Users/admin

Image courtesy of Marco Ruiz, Ph.D.

Plans for the future

- Slicer 4
- Qt and Numpy
- The Common Toolkit (CTK)

Acknowledgements

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Neuroimage Analysis Center

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