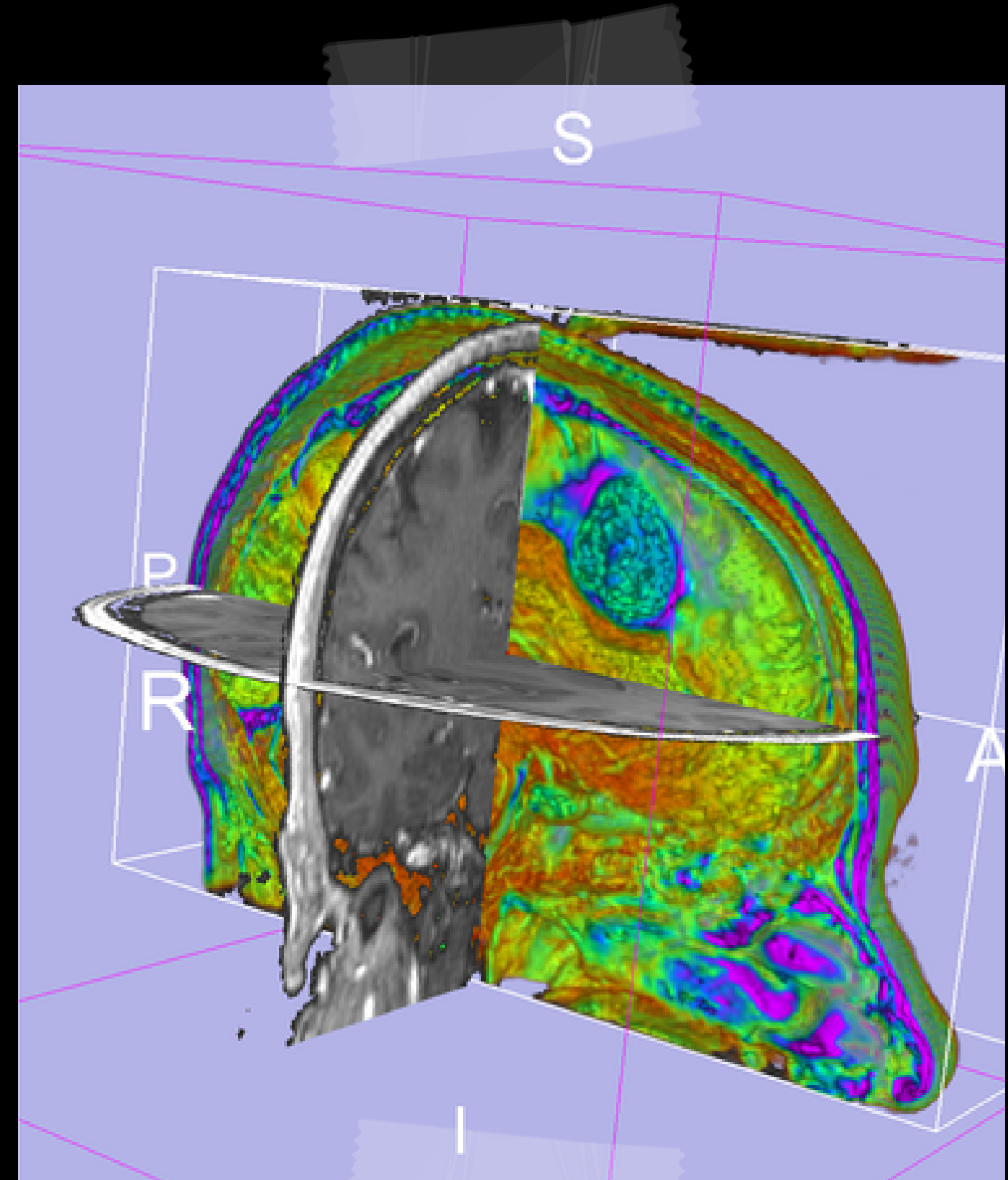# 3D Slicer Respitch

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Learning objectives

Understand what 3D Slicer is and what it can be used for

Learn to navigate the 2D and 3D views in 3D Slicer

Learn some basic segmentation skills e.g. paint, threshold, grow from seeds
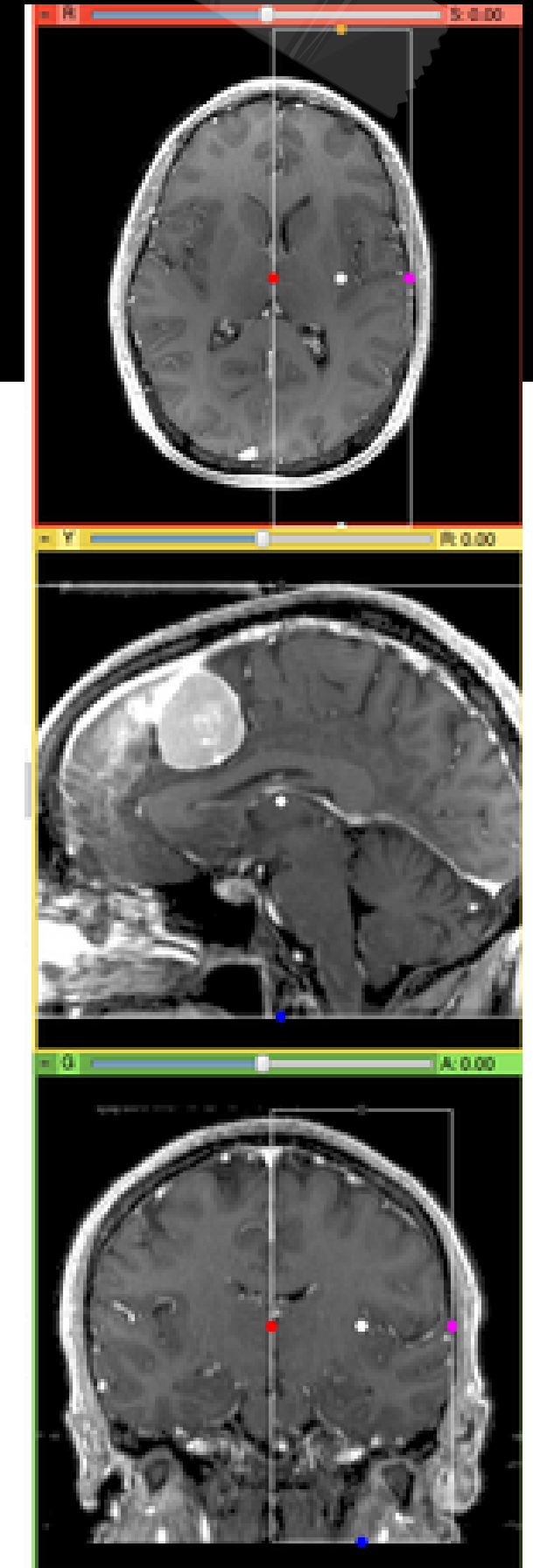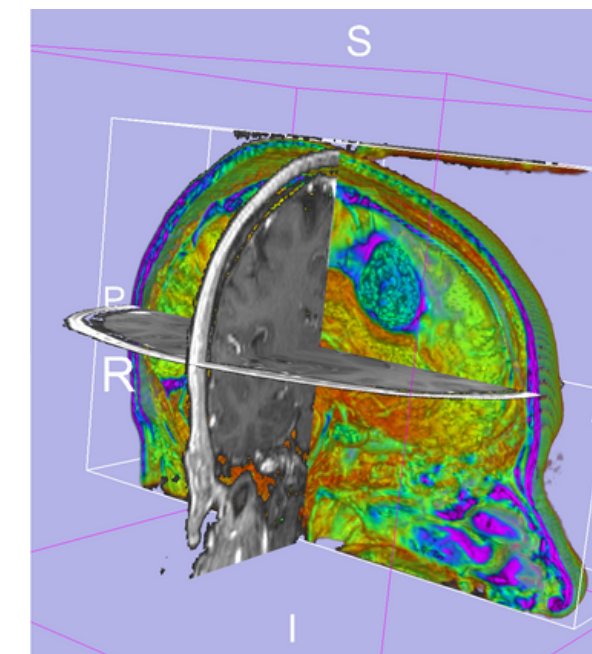
What is 3D Slicer?

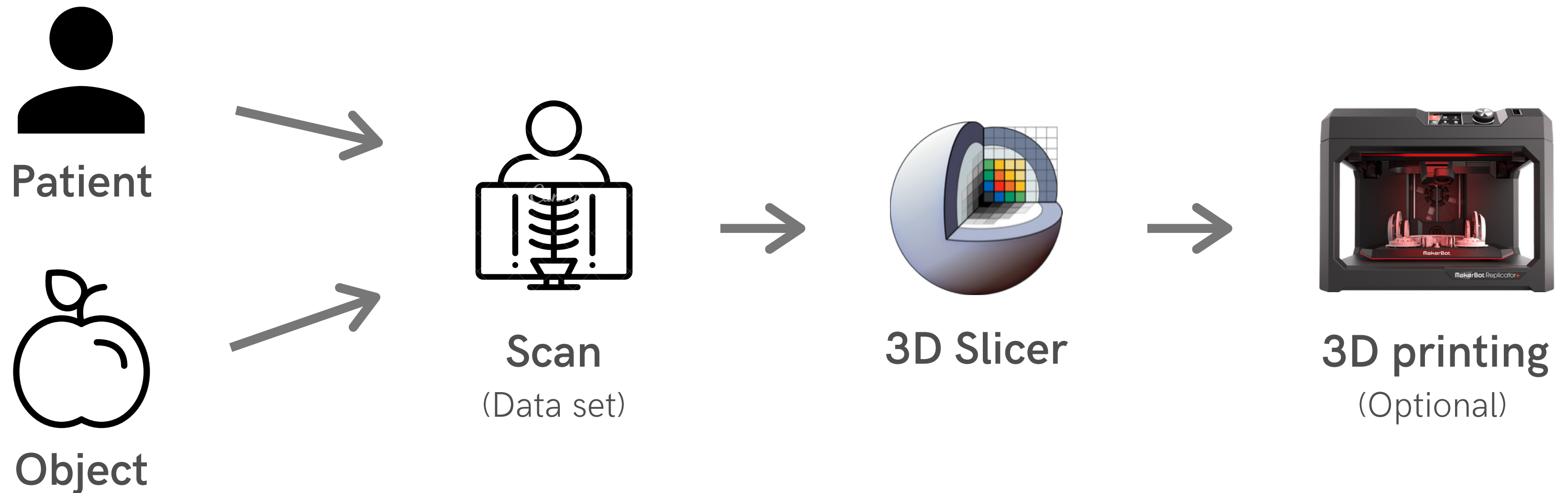**Free, open-source software for medical image analysis and visualization.**

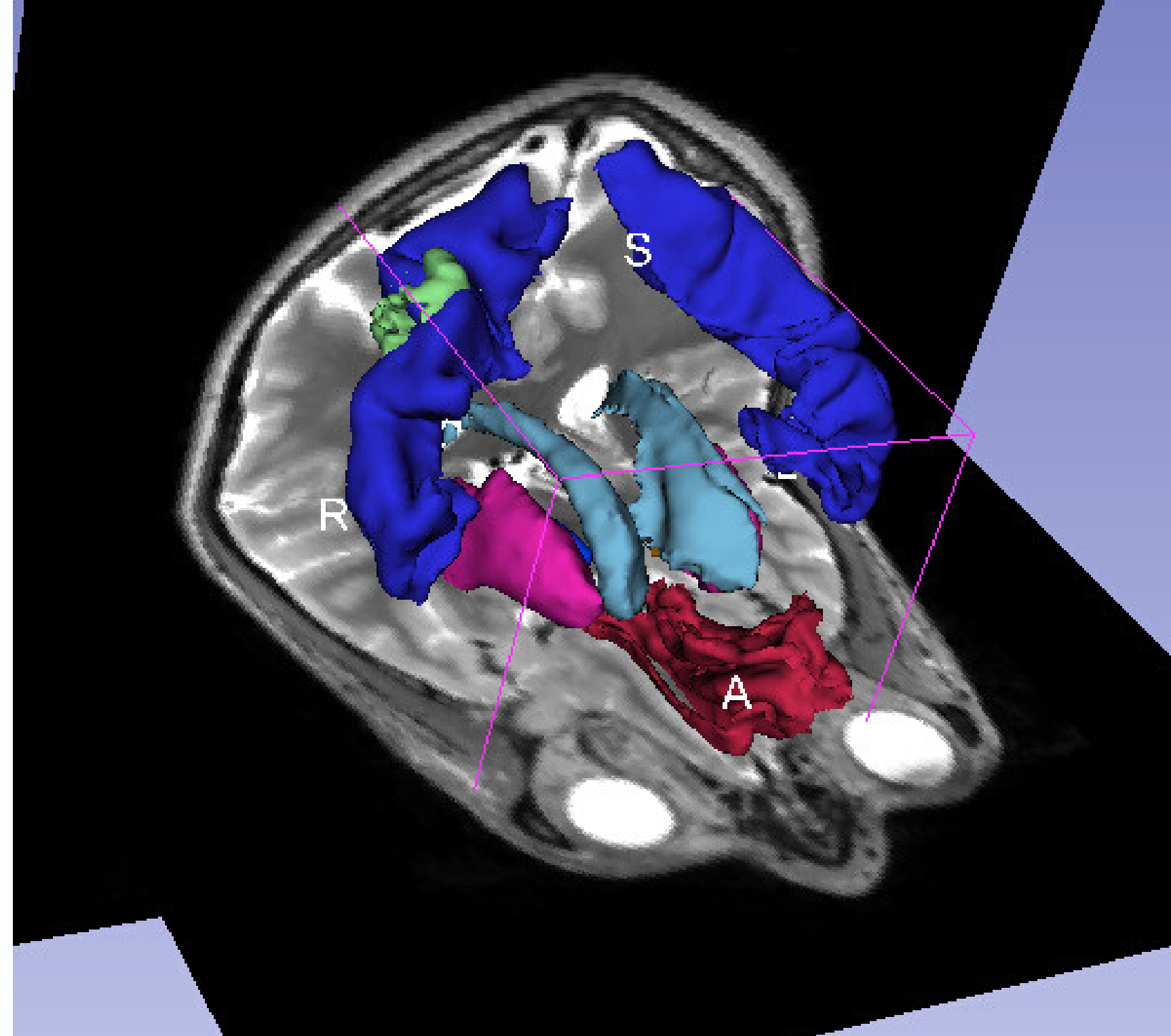Supports many different data sets, from medical scans to microscopy to astronomy!

Commonly used for

visualisating, educating, communicating, sharing, collaborating, prototyping, innovative methods.

A typical workflow

Patient
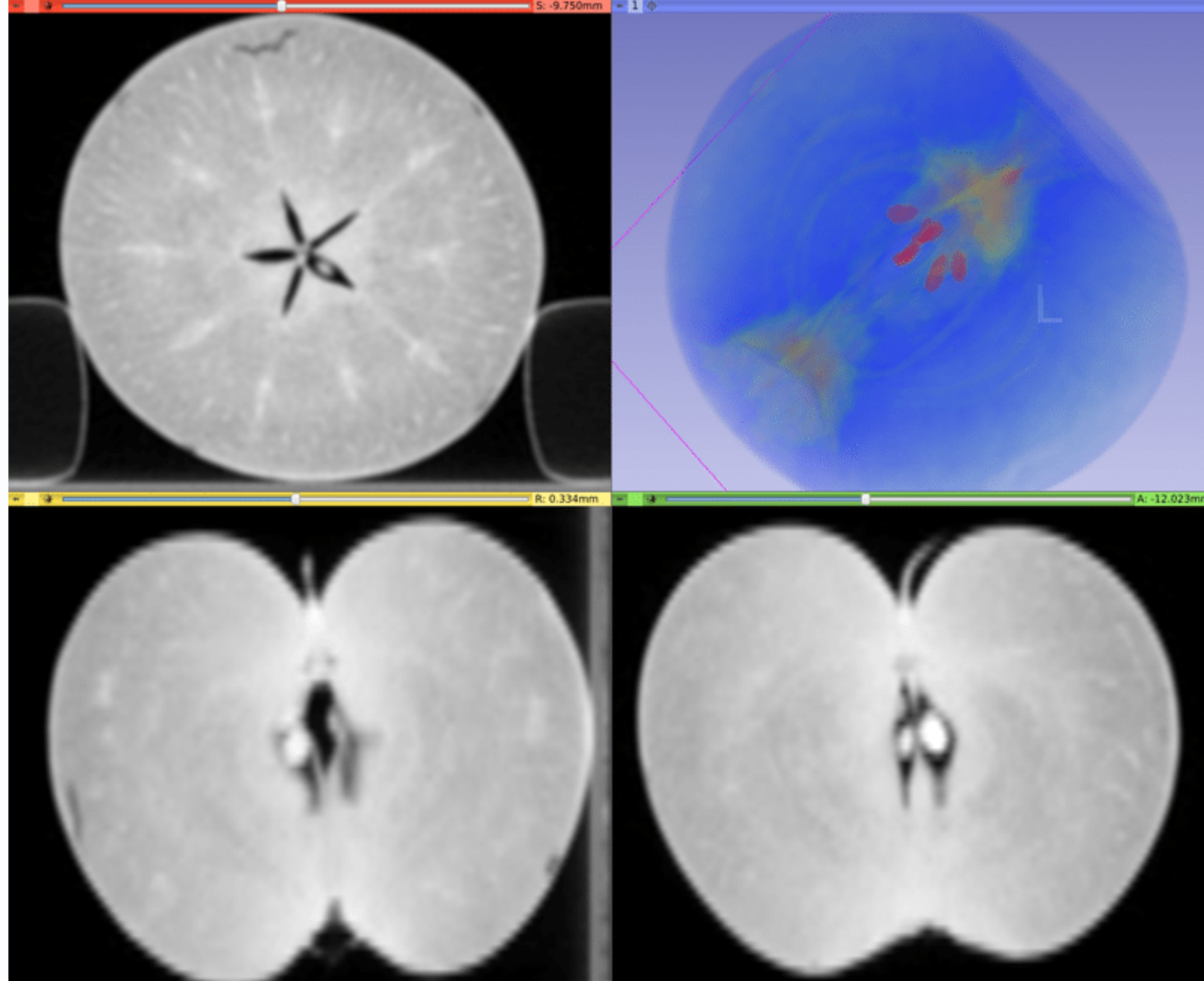
Object

→

Scan
(Data set)

→

3D Slicer

→

3D printing
(Optional)

Visualisation of the brain's motor system and a mass (green).

Volume rendering of a CT scan of a Granny Smith apple.

Real-time navigation of breast cancer surgery at Queen's University, Canada

TODAY'S TOOLS

laptop / cheat sheet / on-call surgeons

APPROACHES

anatomy / medical imaging / image processing

GETTING ORIENTED

2D view / 3D view / navigation

SEGMENTING

modules / paint / threshold / grow from seeds

Let's learn some basics!

TODAY'S TOOLS

laptop / cheat sheet / on-call surgeons

APPROACHES

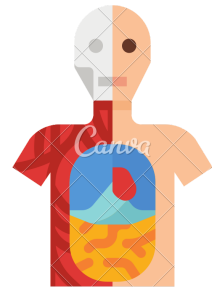anatomy / medical imaging / image processing

GETTING ORIENTED

2D view / 3D view / navigation

SEGMENTING

modules / paint / threshold / grow from seeds

Let's learn some basics!

Approaches to 3D Slicer

ANATOMY

What bodily structures am I interested in, and can I identify them on the screen?

MEDICAL IMAGING

Why do these images look the way they do, and how can I manipulate those qualities using Slicer?

IMAGE PROCESSING

How can I use my knowledge of MS Paint/ GIMP/ Photoshop to use this program?

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Let's learn some basics!

CHALLENGE #1

Bombastic Bill is a keen LARP-er who has run into a spot of bother! During his latest and greatest American Civil War re-enactment, Bill accidentally mixed up his fake musket balls and his real musket balls.

How many musket balls can you find on Bill's CT chest?

CHALLENGE #1

https://www.youtube.com/watch?v=KwLMxN_6rVM

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Let's learn some basics!

CHALLENGE #2

As it turns out, musket balls are cast from pure lead. The surgeons need to remove the musket balls from Bill's chest before he dies of lead poisoning.

Quick! Segment the musket balls you found in Bill's chest.

CHALLENGE #2

<INSERT CLIP FOR TIMING>

BONUS CHALLENGE

CHALLENGE #3

Your years of playing Operation have paid off! The surgery is a success and Bill will live to LARP another day. The chief of surgery is so impressed they ask you to present the case at Grand Rounds.

Present Bill's case to using the checklist taped under your chair.

Wrap up

Understand what 3D Slicer is and what it can be used for

Learn to navigate the 2D and 3D views
e.g. using Slicer and anatomical planes

Learn some basic 3D Slicer skills
e.g. paint, threshold, grow from seeds

Thank you!

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workshops, visit us at…

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