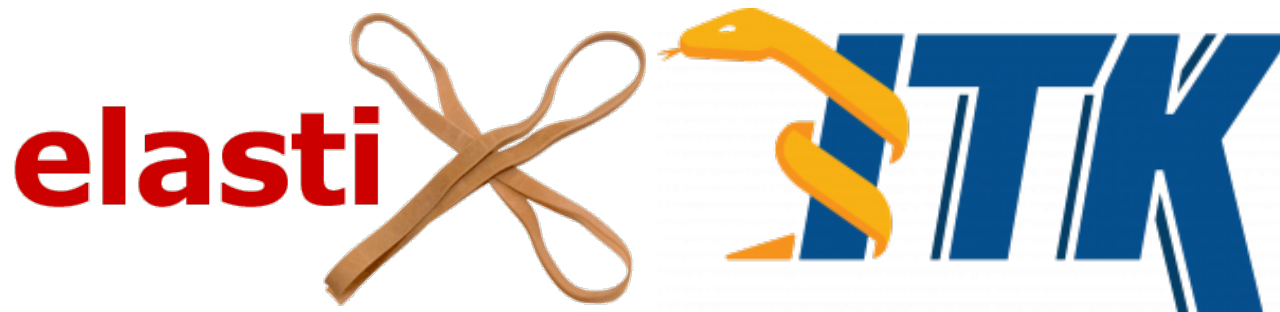


Open source image registration: the elastix toolbox



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Outline

1 Introduction

- *Image Registration*
- *Elastix*

2 Project Goal

3 Current results and future work

- *Accessibility*
- *Integration*
- *Reproducibility*

4 Concluding notes

Table of Contents

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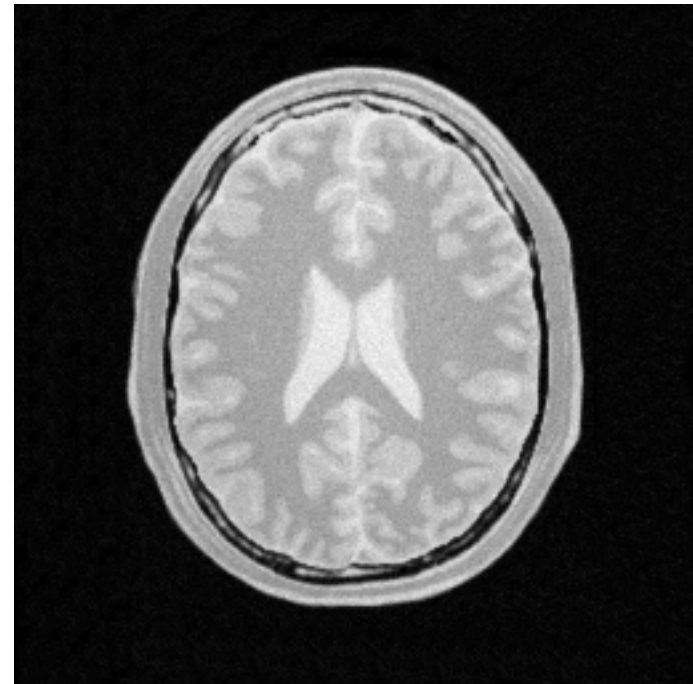
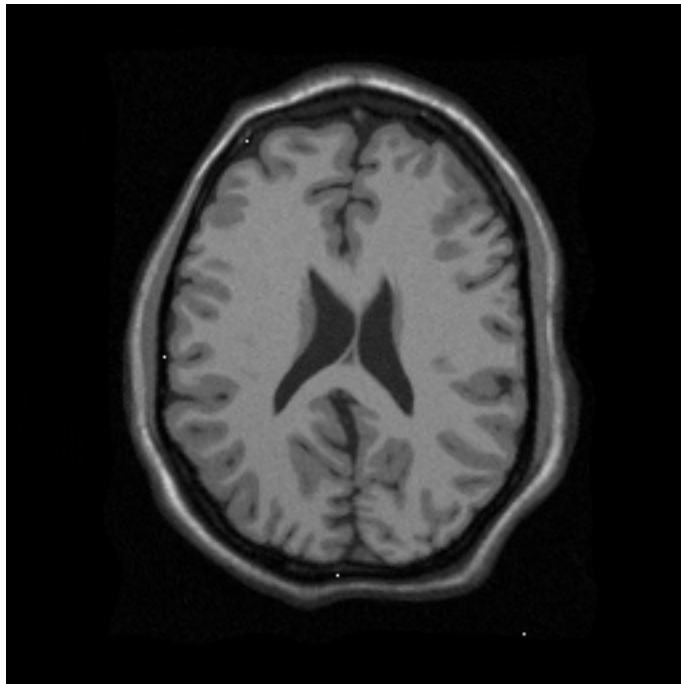
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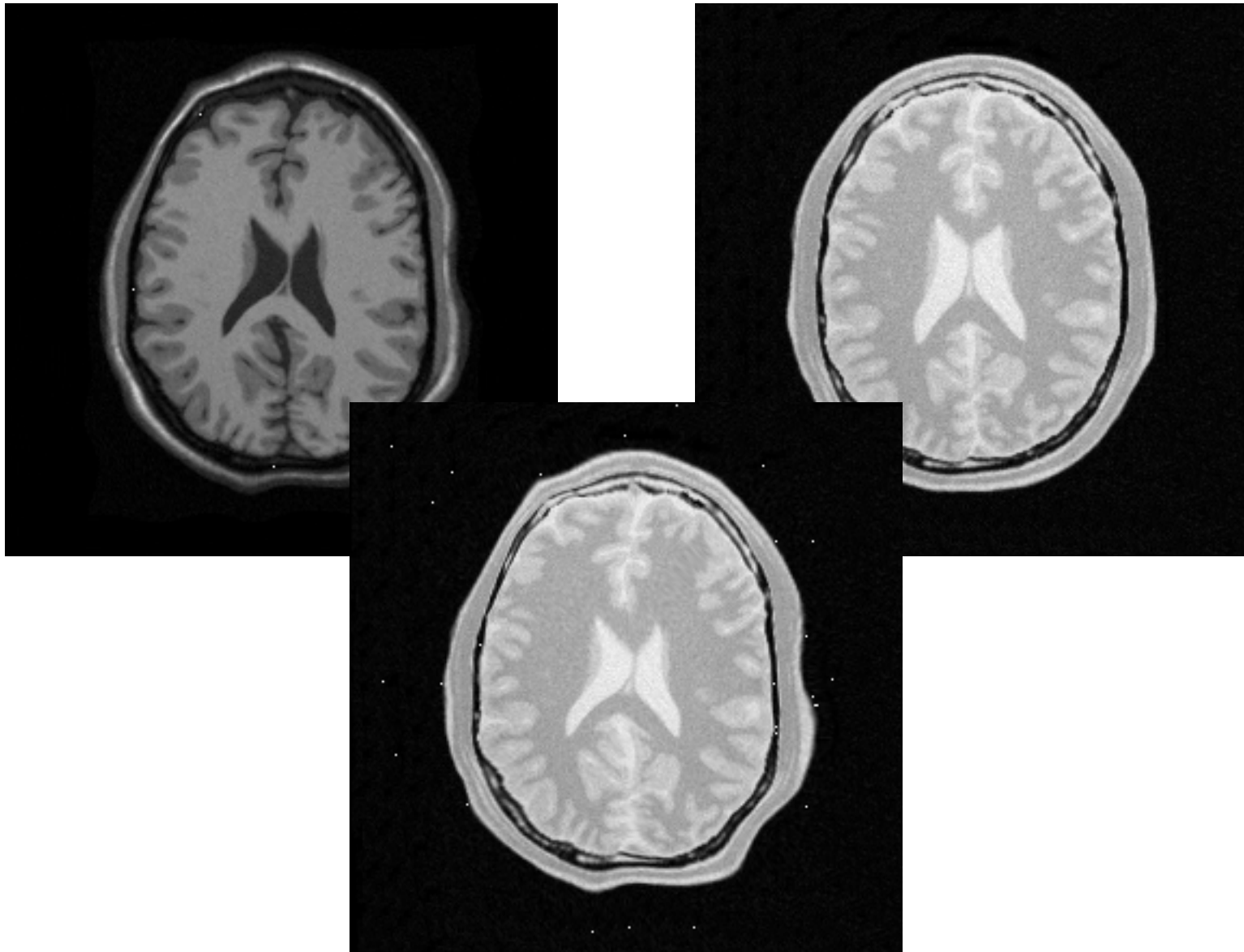
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What is Image Registration?



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How Image Registration?

Optimisation problem

- Metric/Loss
- Optimiser
- Many more parameters: Transforms, Samplers, Interpolators, Optimisation schemes, Masks

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Why Image Registration?

- Combining different image sources
- Comparison
- Segmentation
- Motion correction
- ...

Elastix



- Elastix (C++)
- SimpleElastix (R, Python, Java, Ruby, Lua and more.)
- ITKElastix (Python)

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Making elastix easier to use for both researchers and developers.

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Making elastix easier to use for both researchers and developers.

- Improving **accessibility** of code for use in research and for further development.
- **Integration** with other algorithms or software.
- Facilitate **reproducibility** of research done with elastix.

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Accessibility

- Modernization C++ (WIP)
- ITKElastix (WIP)
 - c++ to python wrap issues
 - upgrades
 - updates
- Example notebooks (done)

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- Portable transformation formats (.hdf5, .tfm) (WIP)
- Viewer (Napari/ITKWidgets) (WIP by ITK)
- Graphical User Interface (WIP by ITK)

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Reproducibility

- Elastix Model Zoo (done)

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Summary

- Good start
- Productive collaboration ITK

Thank You

Questions?

