TOO RICH TO KEEP

SHARING THE WEALTH OF CLINICAL DATA TO ENHANCE PATIENT TREATMENTS

DR CYRIL PERNET, CENTRE FOR CLINICAL BRAIN SCIENCES

cyril.pernet@ed.ac.uk @CyrilRPernet #rfringe16

Monday 1st of August - 4.15/4.22 pm
My research is in developing new MRI protocols and methods to enhance brain tumour surgery (i) decision (ii) planning and (iii) execution/outcome.

We collected a very rich dataset with many MRI sequences, but also surgical and behavioural measures.
A structural and functional magnetic resonance imaging dataset of brain tumour patients

Cyril R. Pernet¹,², Krzysztof J. Gorgolewski³, Dominic Job¹,², David Rodriguez¹,², Ian Whittle¹,²,⁴ & Joanna Wardlaw¹,²

Data Citation

Acknowledgements
The data acquisition was funded by Cancer Research UK through the Edinburgh Experimental Cancer Medical Centre.
WHAT I COULD DO

• New methods to validate functional imaging data protocol = how to map active areas involved in motor behaviour and thinking which are near tumours
• New methods to analyse functional imaging evoked responses
SINCE I SHARED MY DATA

• People in Linkoping University, Sweden (Dr Anders Eklund) have used the diffusion images to look at white matter track fibers.
• They use these images to test a software in the planning of gamma radiation treatment
• The goal is to optimize gamma radiation to minimize damage to the nearby white matter track
→ I couldn’t do that
SINCE I SHARED MY DATA

• People at Gent university, Belgium (Dr Daniele Marinazzo) have used the resting state data to look at functional connectivity between brain regions
• This has lead to a new collaboration (with student Hannelore Aerts) looking at network analysis for mapping and prediction of deficits post surgery
→ I couldn’t do that
SINCE I SHARED MY DATA

• People in Poland (SternMedia, Inc) have looks at the structural data

• Test of a generic algorithm for automated tumour segmentation and characterization (company working with NHS)
→ I couldn’t do that
KNOWING WHAT PEOPLE DO WITH MY DATA

• Dr Marinazzo (Belgium) was looking for such data, and I pointed him to the repo. People in Poland (SternMedia, Inc) were in contact with NHS who then contacted me, and again and I pointed them to the repo.

• Dr Eklund (Sweden), contacted me for some extra details and that’s how I learned about his work with my data.

• In general, I think it would be useful to have repositories tracking for depositors who/where data go, useful for impact measures (and ego)
MAKING A DIFFERENCE WITH DATA

- Data sharing allows new methods to be developed at low cost
- Data sharing maximises research outputs (e.g. analyse data I could not) that can benefit patients
- Increase reproducibility and replicability, which in turns save resources to target robust results for patient treatments
- Facilitates meta-analyses and cumulative evidence for better diagnoses and treatments