

AOMIC: The Amsterdam Open MRI Collection

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Introducing AOMIC

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Potential applications

AOMIC contains three large, multimodal MRI datasets in a standardized format (BIDS¹), both in raw and preprocessed² format, which will be published the openneuro data sharing platform (see **Figure 1**).

Quality checks

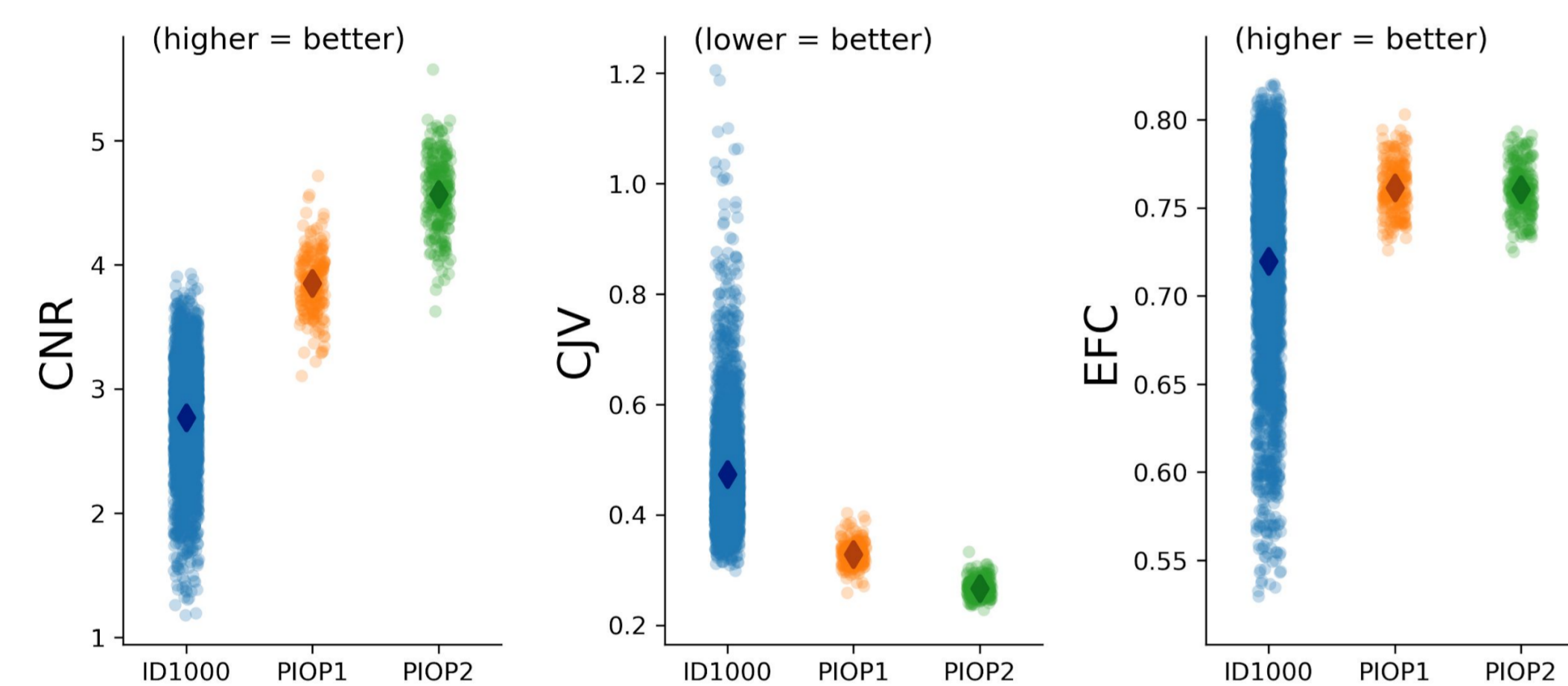


Figure 2. Quality control metrics for functional data (top) and anatomical data (bottom)³. FD = framewise displacement, CNR = contrast-to-noise ratio, CJV = coefficient of joint variation, EFC = entropy focus criterion.

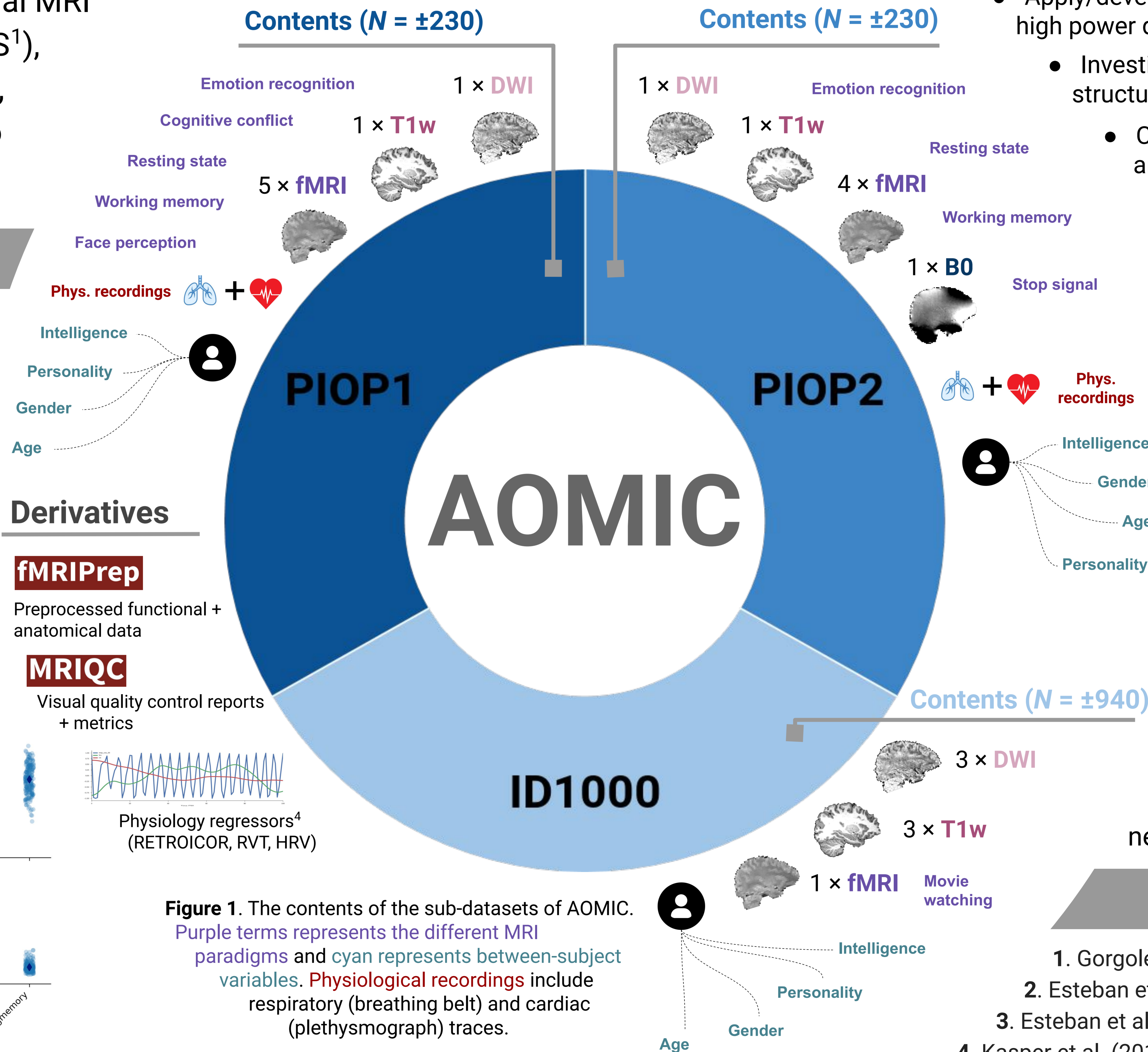
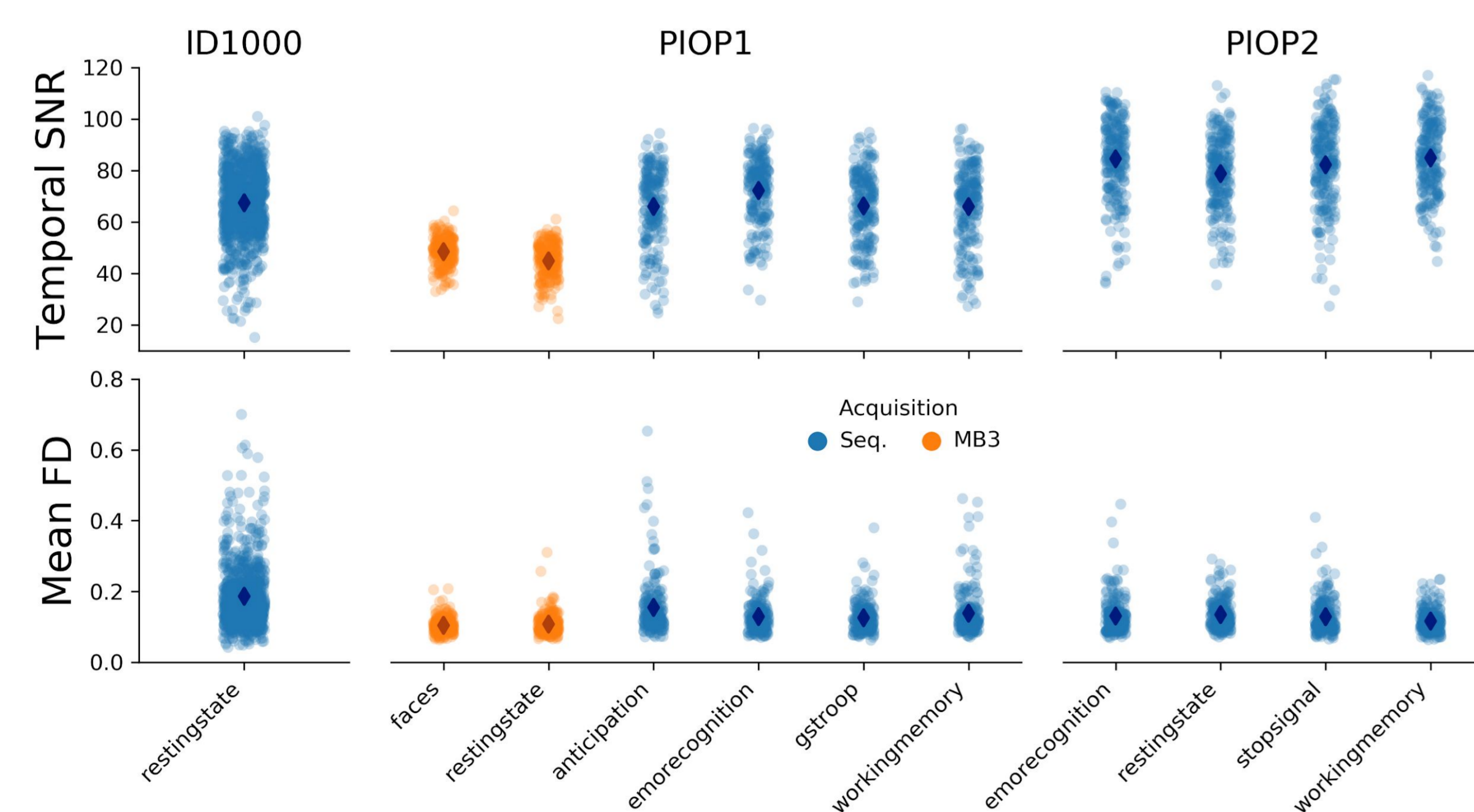


Figure 1. The contents of the sub-datasets of AOMIC. Purple terms represents the different MRI paradigms and cyan represents between-subject variables. Physiological recordings include respiratory (breathing belt) and cardiac (plethysmograph) traces.

- Apply/develop machine learning methods on a (relatively) high power dataset
- Investigate individual differences in functional / structural brain organization
- Compare different preprocessing / denoising / analysis pipelines

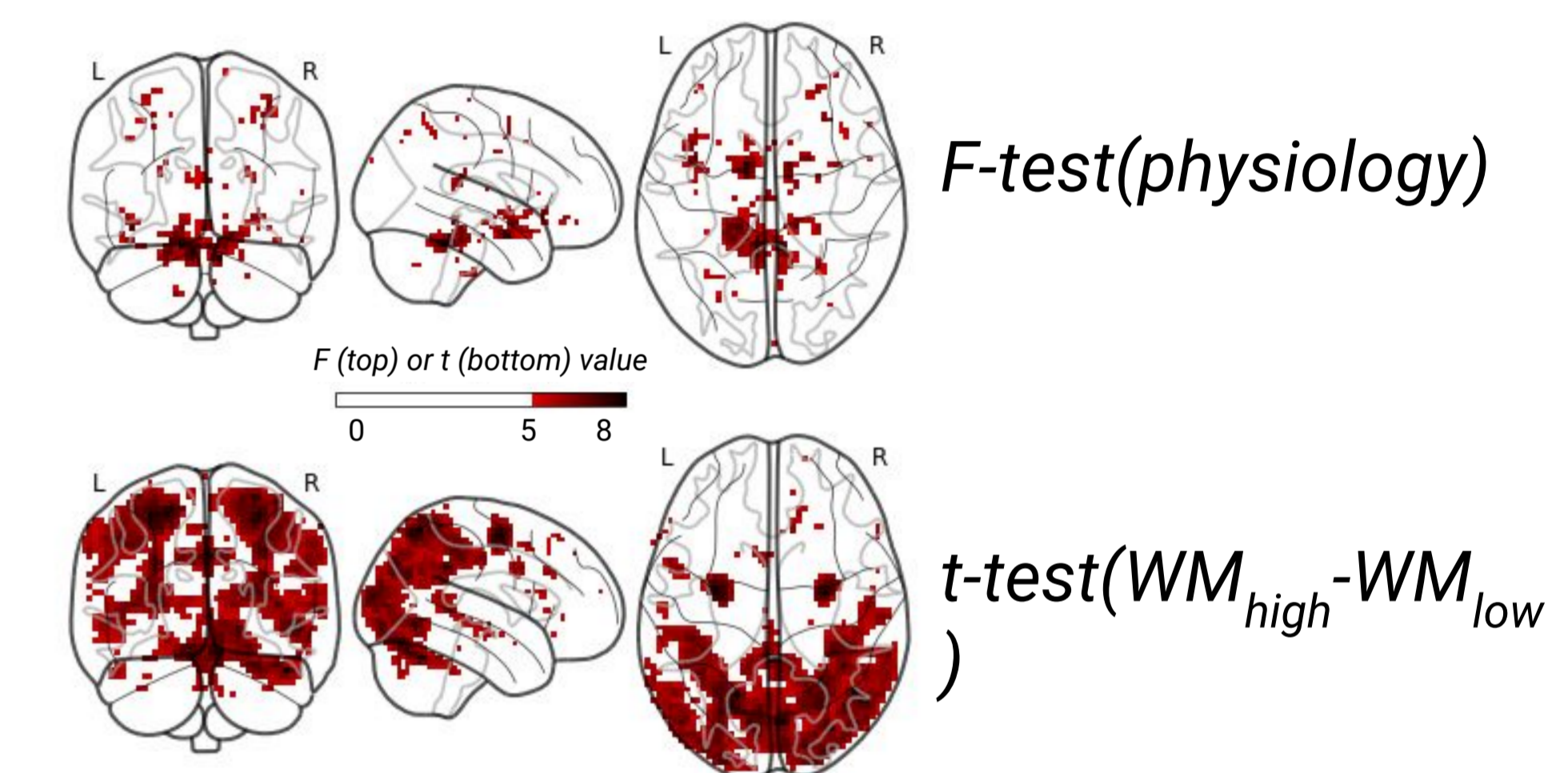


Figure 3. Group analysis (PIOP1, $N = 80$) of the effect of physiology (top) and task (bottom, Working memory task)

How to get started?

- Expected release: December 2019
- BIDS + derivatives on Openneuro^A
- Code + tutorials available from GH^B
- Star the repositories on Github to be informed about the releases and new datasets!

References

1. Gorgolewski et al. (2016). *Scientific Data*, 3, 160044.
2. Esteban et al. (2019). *Nature methods*, 16(1), 111.
3. Esteban et al. (2017). *PloS one*, 12(9), e0184661
4. Kasper et al. (2017). *Journal of neuroscience methods*, 276, 56-72.