## **DYNVIB - PUBLISHABLE SUMMARY**

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Figure 1. (A) We improved Virtual Brain simulations making them able to reproduce the human resting state chronnectome. Our model naturally captures the characteristic switching between some well-known functional networks, such as the dorsal attention network. (B) Our metrics of Functional Connectivity Dynamics (FCD), describing correlations between functional networks observed at different times, are not only useful to constrain Virtual Brain models, but also to track alterations of brain dynamics occurring throughout the human lifespan. Our best FCD-based biomarkers display unprecedented age-prediction performance.

## References

Calhoun VD et al. (2014) The Chronnectome: Time-Varying Connectivity as the Next Frontier in fMRI Data Discovery. Neuron 84: 262–274.

Kopell NJ et al. (2014) Neuron. 2014;83: 1319-1328.

Sanz Leon P et al. (2013) Front Neuroinform. 2013;7: 10.

- Hansen ECA, Battaglia D et al. (2015) Functional connectivity dynamics: modeling the switching behavior of the resting state. NeuroImage. 2015;105: 525–535.
- Battaglia D, Hansen ECA, Ritter P, Jirsa V (2015a) Functional Connectivity Dynamics of the resting state through the human adult lifespan. *Manuscript in preparation*. See abstract for the SFN Meeting (Chicago, 2015): <u>622.06/X46</u>.
- Battaglia D, Guyon I, Lemaire V, Soriano J editors (2015b) Journal Machine Learning Research (JMLR) Workshop and Conference Proceedings, <u>vol. 46</u>: Neural connectomics workshop at ECML 2014. See editors' foreword: "First Connectomics Challenge: From Imaging to Connectivity".
- Kirst C, Timme M, Battaglia D (2015) Dynamic information routing in complex networks. *Manuscript resubmitted after revision*. Preprint available in BioRxiv. doi: 10.1101/029405
- Palmigiano A., Geisel T, Wolf F, Battaglia D (2015) Dynamic information routing at the edge of synchrony. *Manuscript resubmitted after revision*. See abstract for the SFN Meeting (Washington, 2014): <u>215.12/C52</u>.
- Helmer M, Chen XJ, Wei W, Wolf F, Battaglia D (2015) Connectome of a model local cortical circuit flexibly shapes layer-dependent multi-frequency oscillations. *Manuscript submitted*. Preprint available in BioRxiv. doi:10.1101/026674.
- Bastos AM et al. (2015) Visual areas exert feedforward and feedback influences through distinct frequency channels. Neuron. 2015;85: 390–401.