

2020 data release

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Aims

- Train Artificial Neural Networks to behave in a more human-like manner
- We believe this can be achieved using extensive whole-brain activity recordings of brain networks in naturalistic tasks.
- Acquire extensive neuroimaging data on small number of participants.
- Openly share data with the academic community.

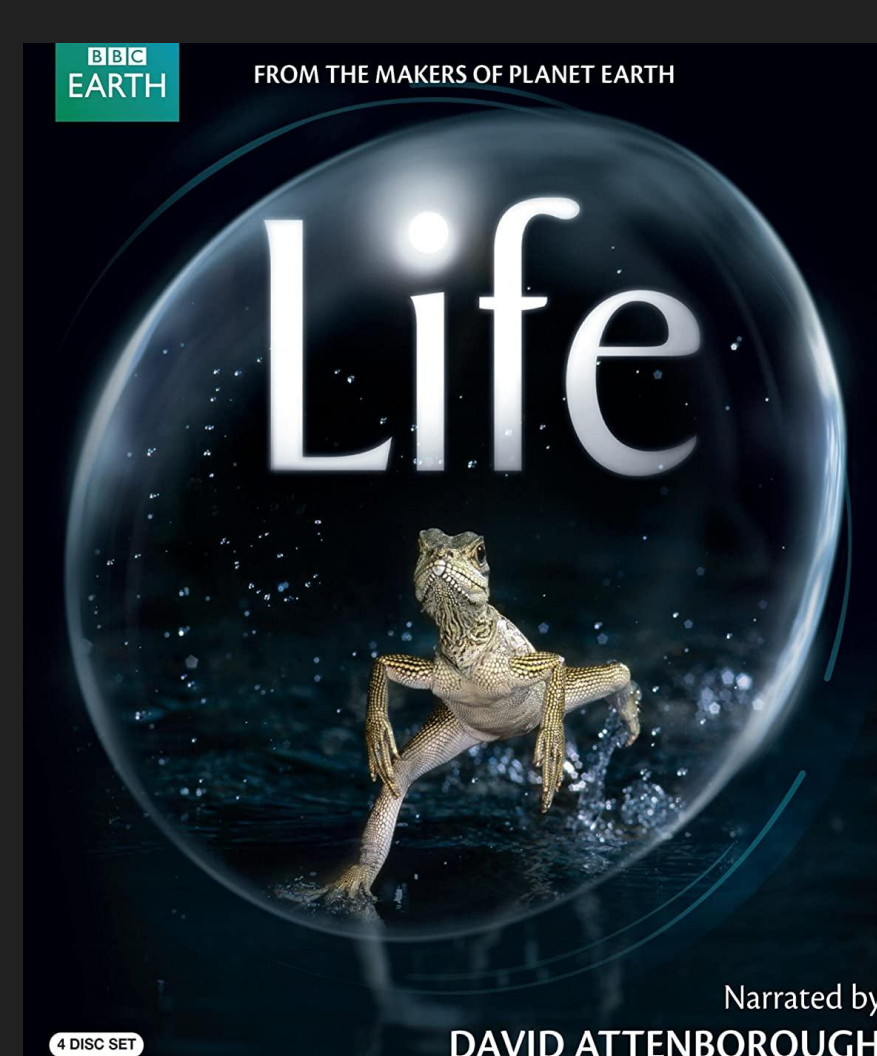
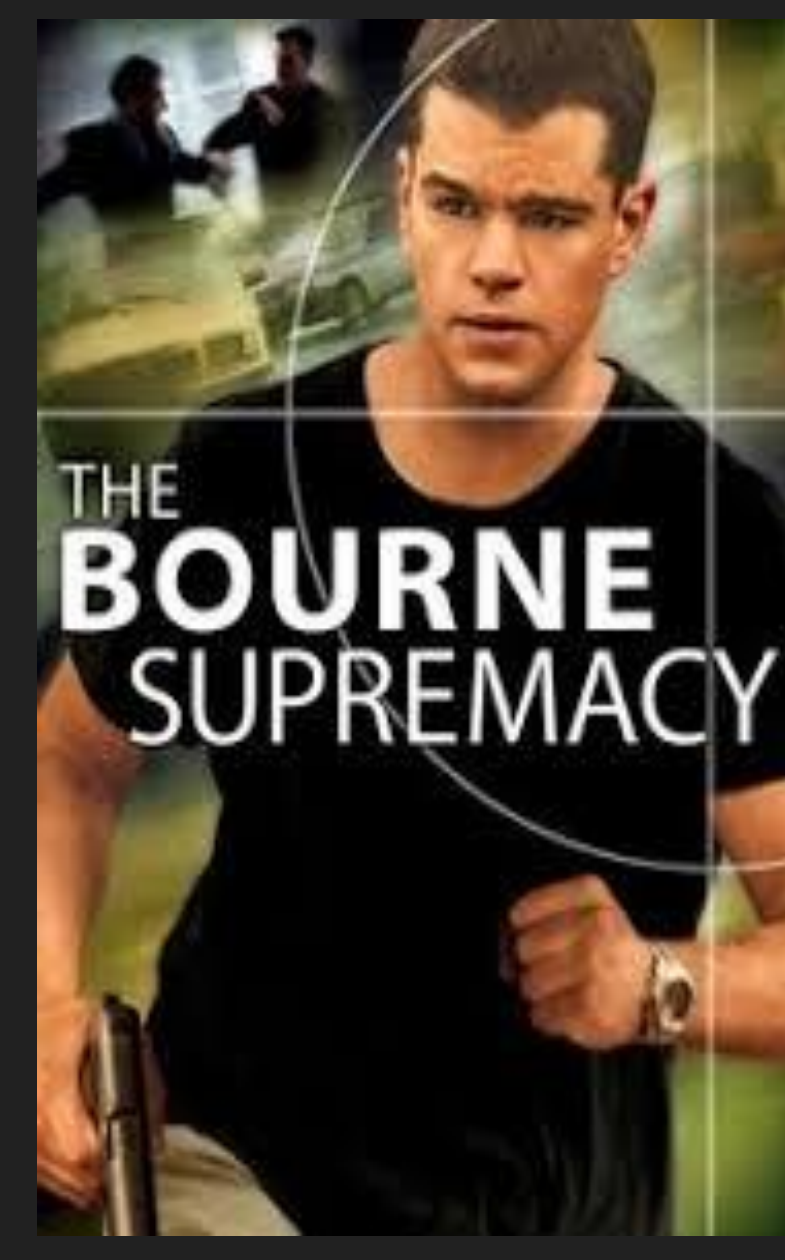
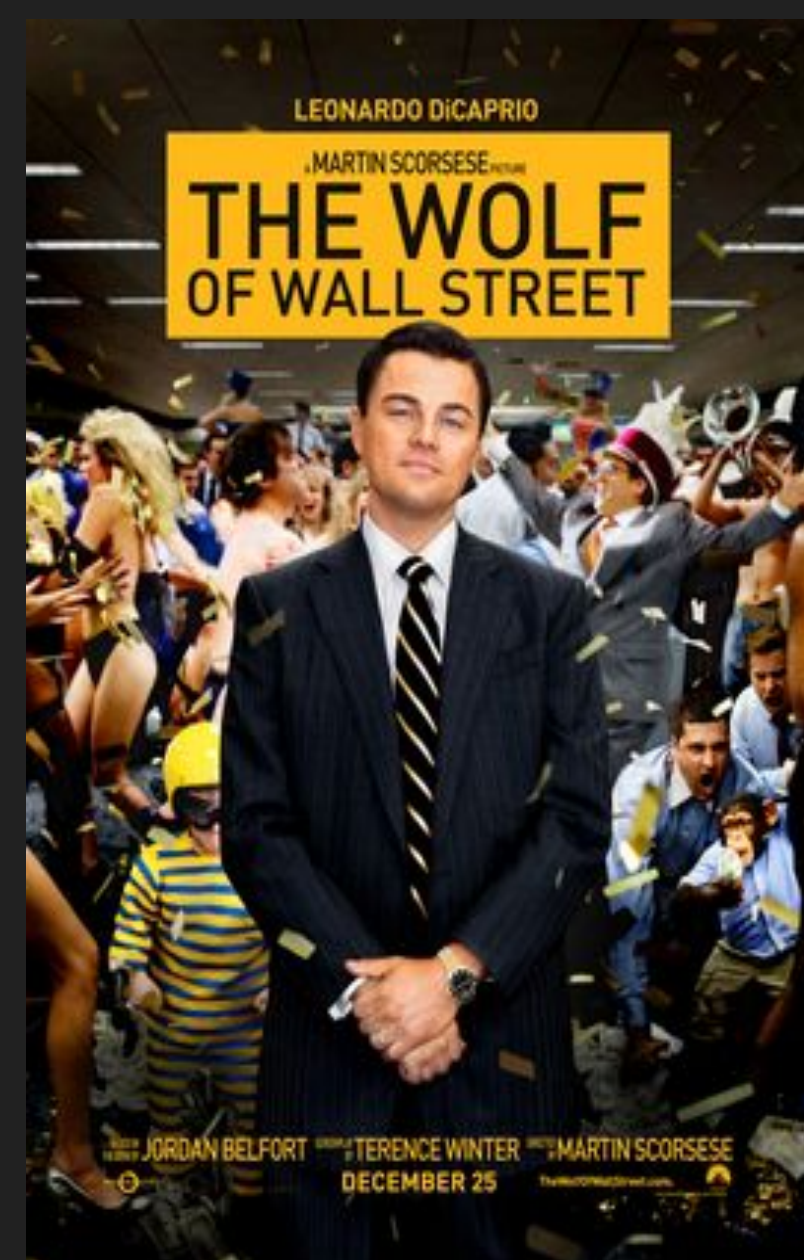
Datasets

Anatomical (q)MRI (2x/year)

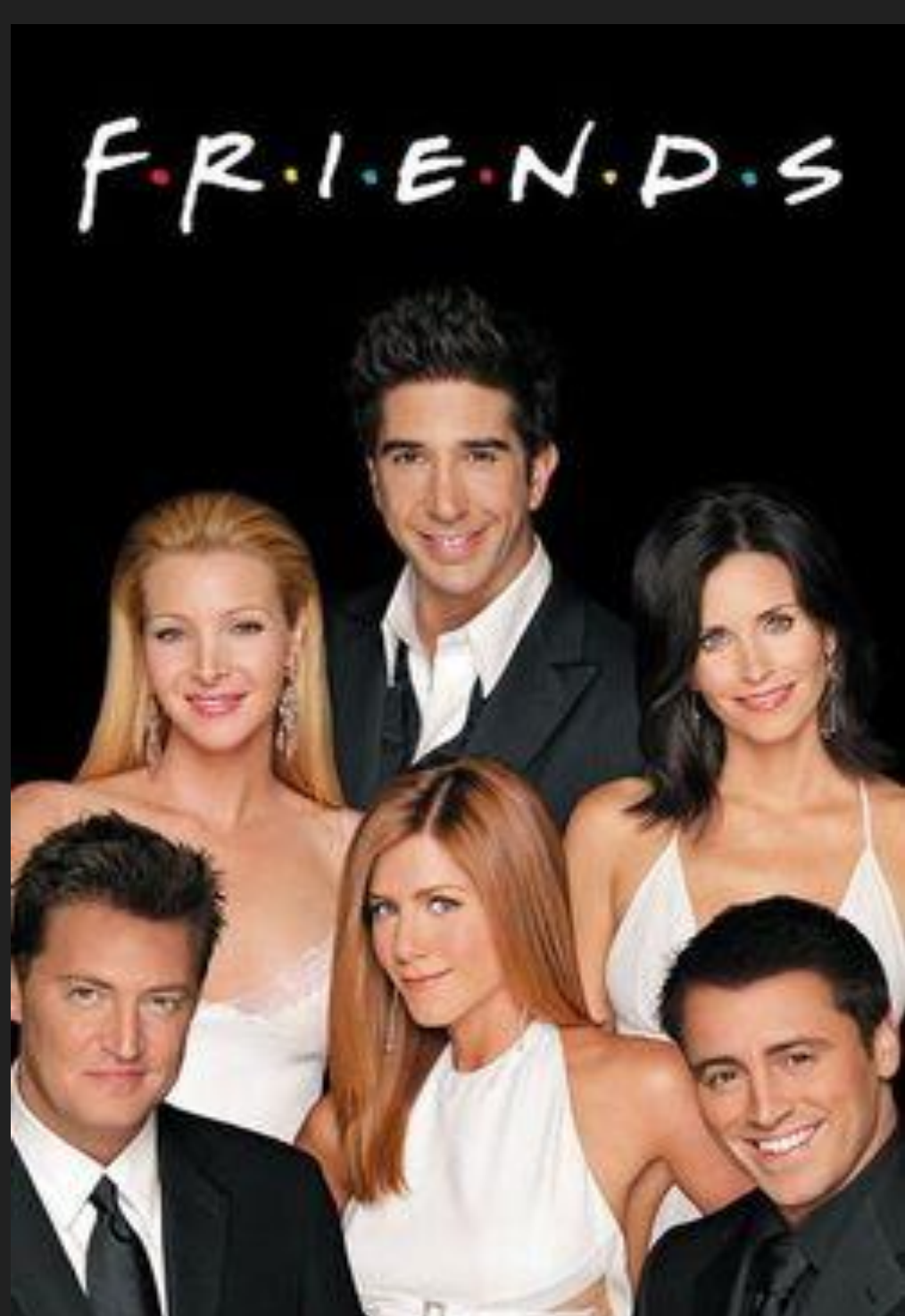
- Brain: T1w, T2w, DWI, MTw, PD, MP2RAGE, SWI
- Spinal Cord standard protocol¹: T1w, T2w, DWI, MTw, PD, T2Star

Movie10 (12h)

- Bourne Supremacy
- Wolf of Wall Street
- Hidden Figures (x2)
- Life (x2)



Friends season 1 (9h)



HCP test-retest (10h)

- 4 participants completed
- 15 repetitions of HCP functional localizer



Methods



SUBJECTS

6 healthy individuals,
3 women and 3 men



Extreme scanning

Over 500h of functional
neuroimaging per subject



VIDEO GAMES ETC

Wide range of cognitive tasks
Extensive naturalistic
paradigms (movies, games...)



fMRI

Functional Magnetic
Resonance Imaging acquired
on a 3T Prisma Siemens,
simultaneous multislice imaging



MEG

Magnetoencephalography
acquired on a 275-sensor
CTF Ltd. system.



BIOSIGNALS

Biosignals concurrent to imaging
(cardiac, respiratory,
skin-conductance, eye-tracking)

Release



Raw / Preprocessed data (fMRIPrep²) in BIDS³ via Datalad⁴

Data access

- Beta release to arrive summer 2020
- Release candidate in September 2020
- Registered access with DTA for academic researcher

Future 2021 release

Datasets

- Shinobi (video game)
- Image10k (ER-image db)
- More seasons of Friends
- Language triplet task
- Emotions (emotionally rated video clips)
- Memory task (associative space-item)



Features

- Preprocessed physiological signals (fMRI artifacts)
- Rich annotation of stimuli (scenes, images, dialogues, ...)
- Data fetcher (easy data loading for ML)

Acknowledgement

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1. Cohen-Adad, J. (2020). Consensus acquisition protocol for quantitative MRI of the spinal cord. <https://doi.org/10.17605/OSF.IO/TT4Z9>
2. Esteban et al. (2018), fMRIPrep: a robust preprocessing pipeline for functional MRI. *Nat Methods*, 16, 111–116
3. Gorgolewski et al. (2016), The brain imaging data structure, a format for organizing and describing outputs of neuroimaging experiments. *Sci Data* 3, 160044
4. Halchenko, Yaroslav O. et al. (2019). Datalad, Zenodo. <http://doi.org/10.5281/zenodo.3512712>