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Feis, R.A.

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Neuroimaging biomarkers in genetic frontotemporal dementia: towards a timely diagnosis

Rogier Feis

1. Individual classification of frontotemporal dementia mutation carriers using magnetic resonance imaging based features is possible even before symptom onset. *This thesis*
2. MRI-based classification is sensitive to longitudinal changes in frontotemporal lobar degeneration pathology, which seems to accelerate in the final years leading up to symptom onset. *This thesis*
3. Diffusion MRI-based classification may predict symptom onset in genetic FTD. *This thesis*
4. Artefact removal through independent component analysis reduces structured noise in resting-state functional MRI data whilst retaining physiological differences, aiding the combined analysis of multicentre data in rare disease groups. *This thesis*
5. Hierarchical classification may utilise the combination of overlapping and deviating neuroimaging changes between different FTD syndromes and FTLD pathologies for the early detection of FTD subtypes. *Adapted from Jun Pyo Kim (2019)*
6. Diffusion MRI-based white matter features seem to be the most promising MRI biomarkers for the early detection of genetic FTD. *Adapted from Caroline Greaves (2019)*
7. The nature of brain white matter requires more complex approaches than diffusion tensor imaging to properly map multiple fibre orientations. *Adapted from Flavio Dell'Acqua (2019)*
8. To explain or to predict? Conflation between explanation and prediction is common, yet the distinction must be understood for progressing scientific knowledge. *Adapted from Galit Shmueli (2010)*
9. "There is nothing like looking, if you want to find something. You certainly usually find something, if you look, but it is not always quite the something you were after." *John R.R. Tolkien*. Open-mindedness is important when interpreting scientific results, as is multiple comparison correction.
10. "Alles kan, en wat niet kan duurt wat langer." *Hans Feis*. Optimisme in de wetenschap is geoorloofd: vrijwel alles dat we nu vanzelfsprekend vinden werd ooit onmogelijk geacht.