

Characterisation of Alzheimer's Disease using graph theoretical analysis of fMRI data

Paul McCarthy¹ Lubica Benuskova¹ Elizabeth Franz²

¹Department of Computer Science, ²Department of Psychology
University of Otago
Dunedin, New Zealand

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Alzheimer's Disease

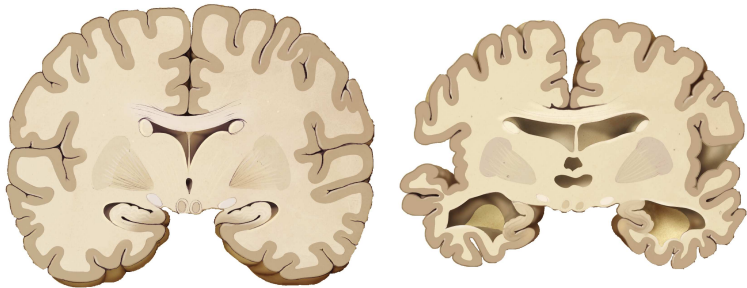
The data

Analysis

Results

End

Alzheimer's Disease



<http://www.nia.nih.gov>

Alzheimer's Disease

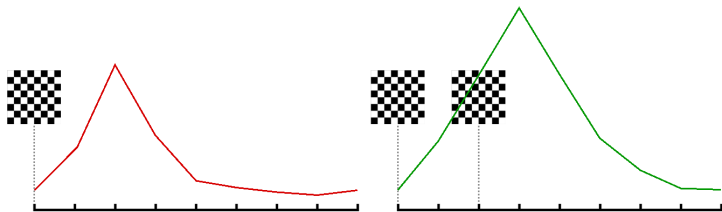
The data

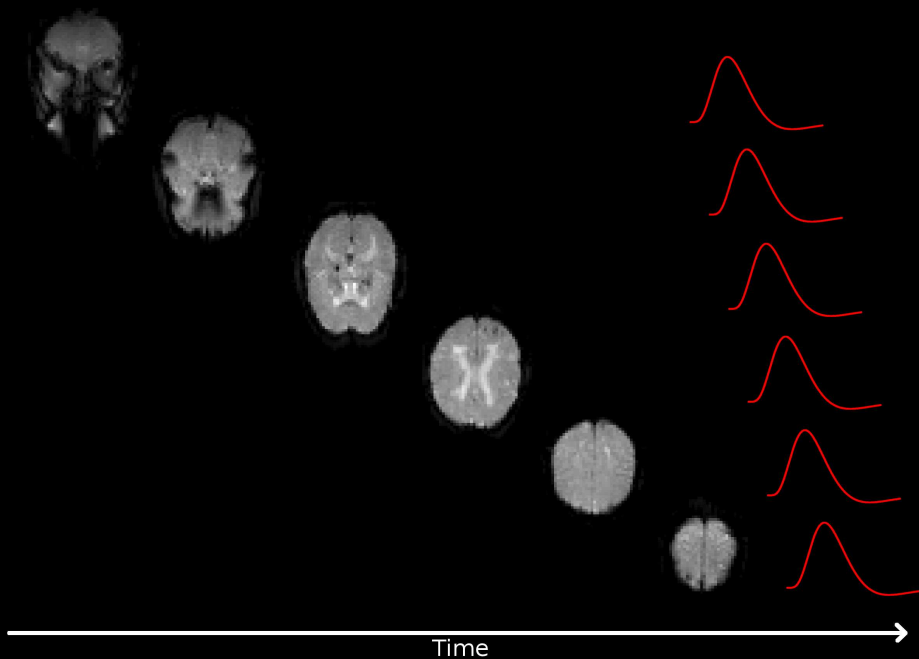
Analysis

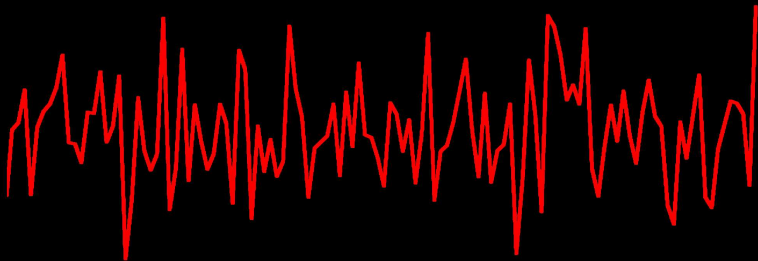
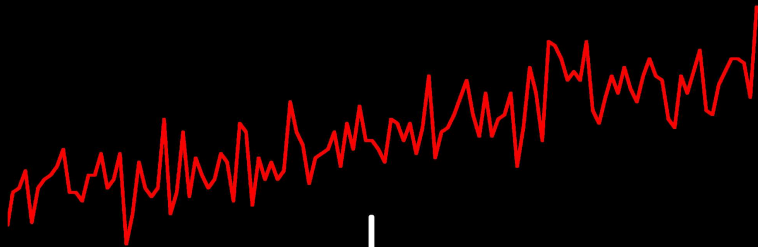
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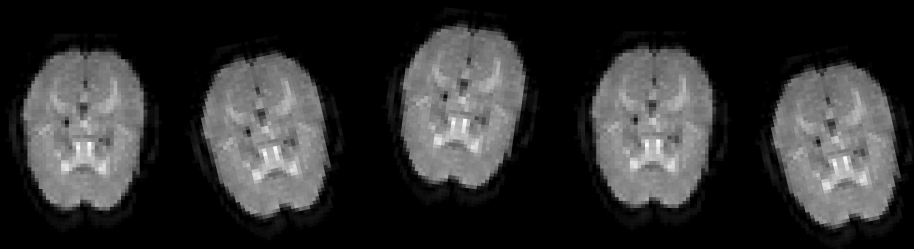
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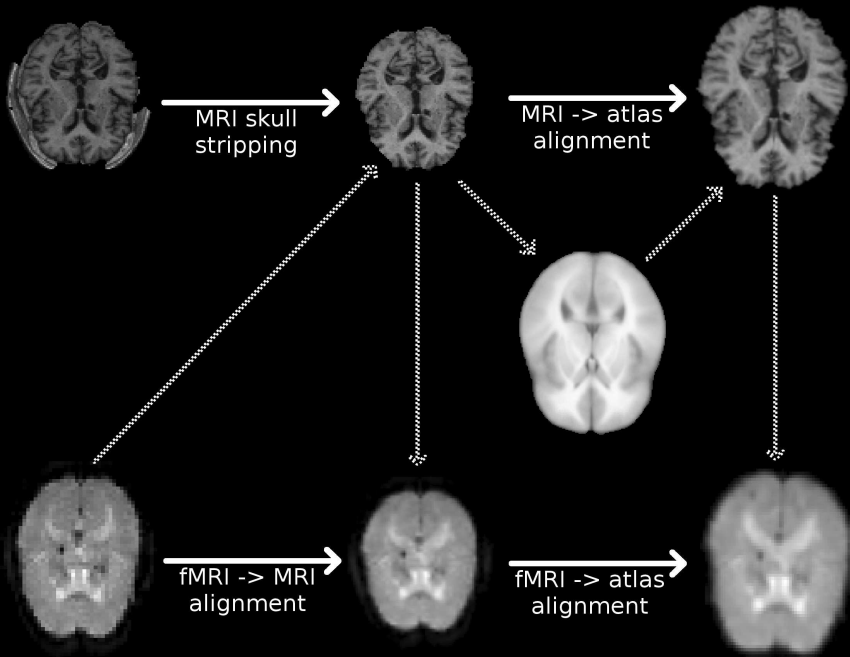




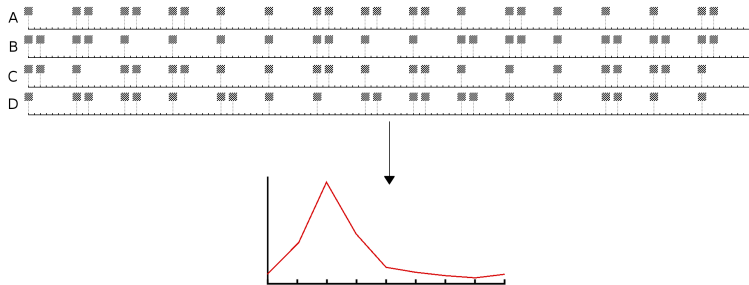
Time



Time 



Averaging



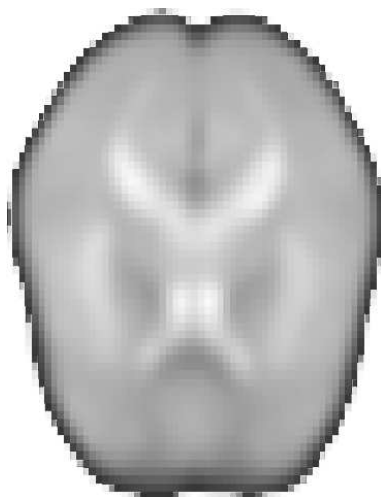
Alzheimer's Disease

The data

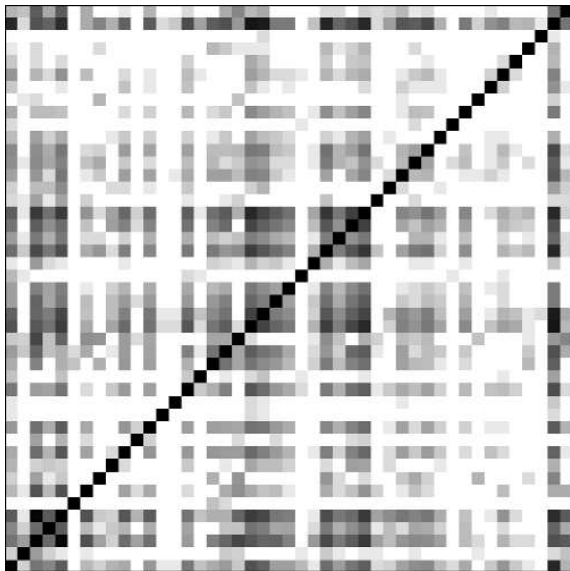
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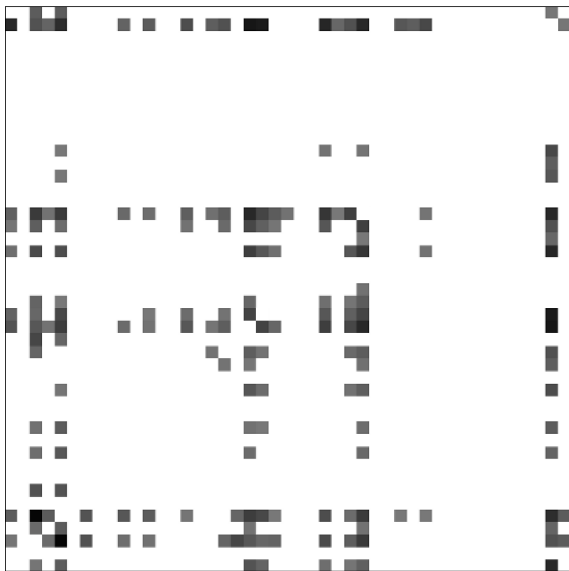
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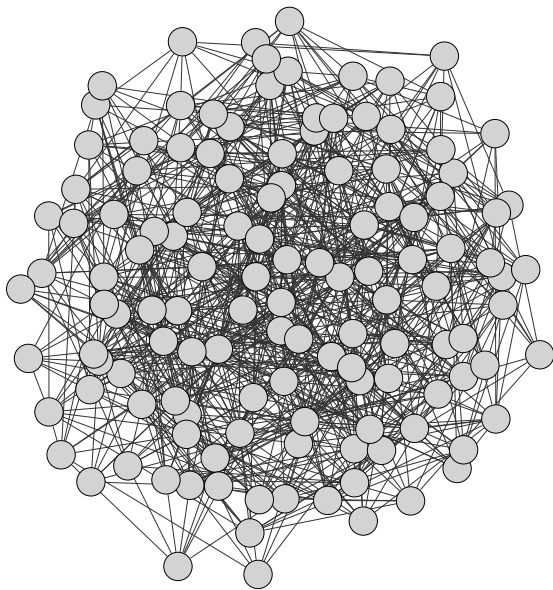
End



$$r(x, y) = \frac{\sum (x_i - \bar{x}) (y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \sum (y_i - \bar{y})^2}}$$







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Group graphs

	Nodes	Density	Degree
Young	22090	0.0606	1338.6
Aged	23907	0.0624	1492.6
Aged with AD	23512	0.0388	911.1

Group graphs

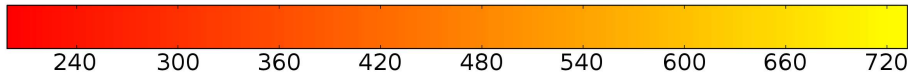
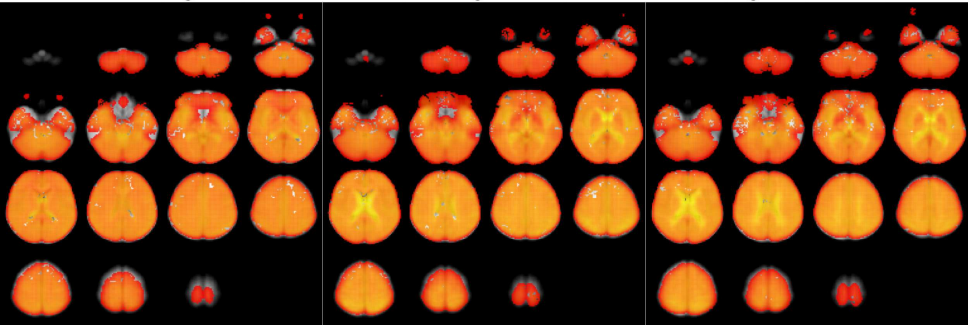
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Mean fMRI BOLD intensity

Young

Aged

Aged with AD

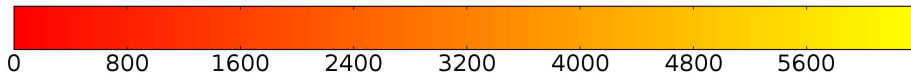
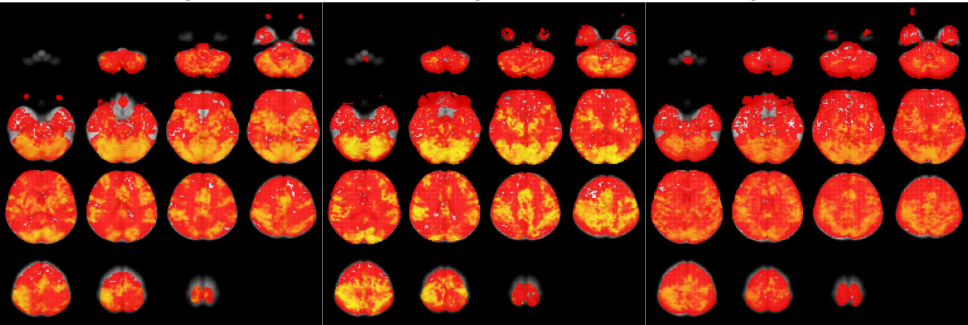


Node degree

Young

Aged

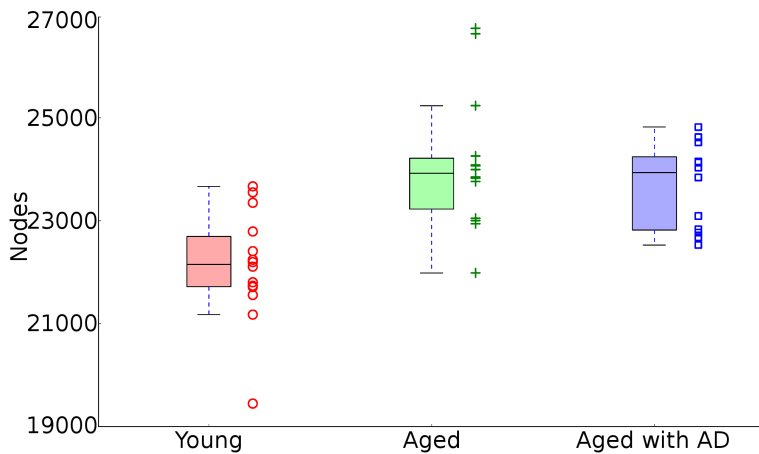
Aged with AD



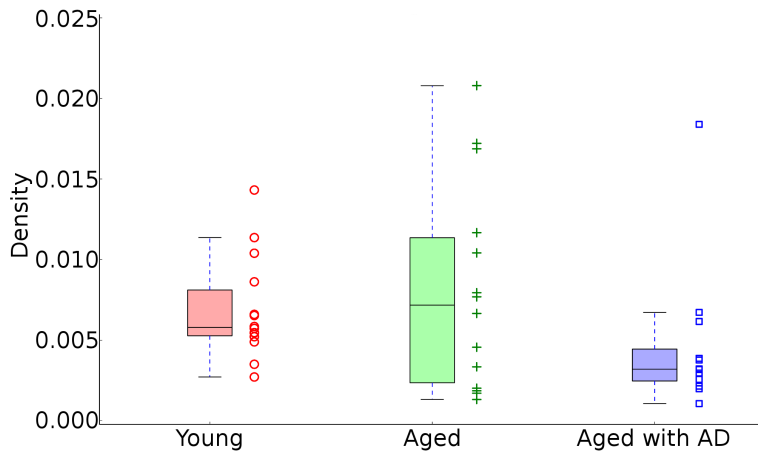
Subject graphs

	Nodes	Density	Degree
Young	22123.8	0.0069	151.2
Aged	24102.3	0.0081	194.3
Aged with AD	23668.9	0.0047	110.2

Subject graphs



Subject graphs



Alzheimer's Disease

The data

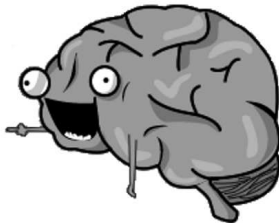
Analysis

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Thanks!

Questions?



<http://theoatmeal.com>