



Explainable AI and dementia

Detecting patient-specific brain aberrations



Esten H. Leonardsen

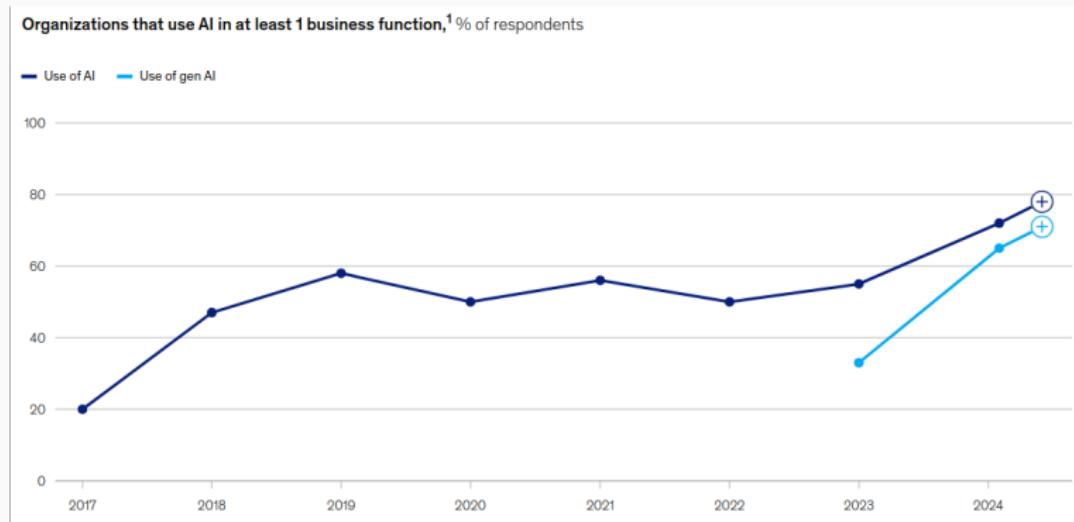
Chief Scientific Officer, baba.vision

Post-doc at the Department of
Psychology, Universitet i Oslo



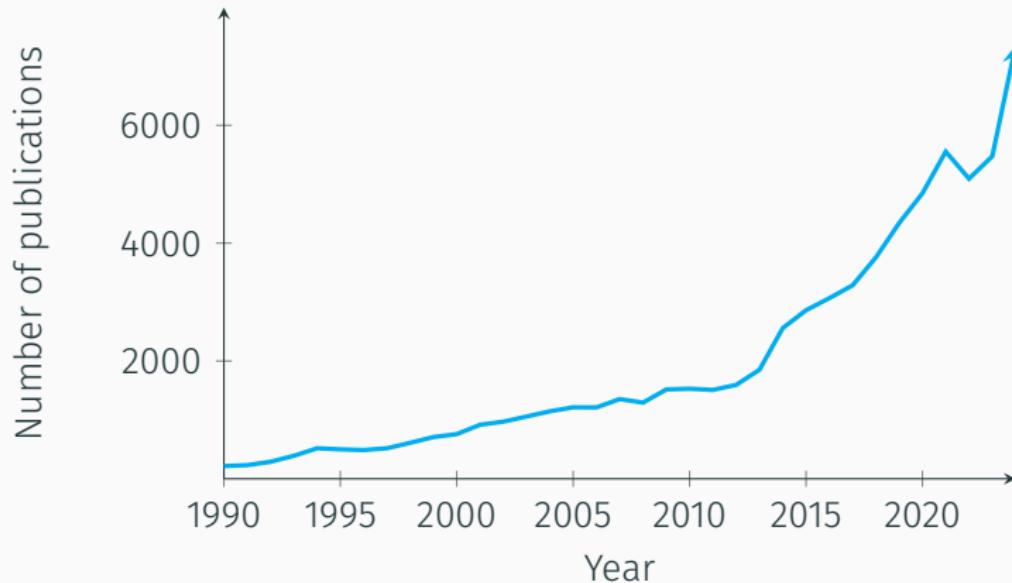
baba.vision

Do we need explainable AI?



McKinsey & Company, *The state of AI: How organizations are rewiring to capture value* (2025),
<https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-state-of-ai>

Do we need explainable AI?



Publications from <https://pubmed.ncbi.nlm.nih.gov/> containing "(neurology OR neuroscience OR neuroimaging)
AND (ai OR artificial intelligence OR deep learning)"

Do we need explainable AI?

AI in norwegian health care

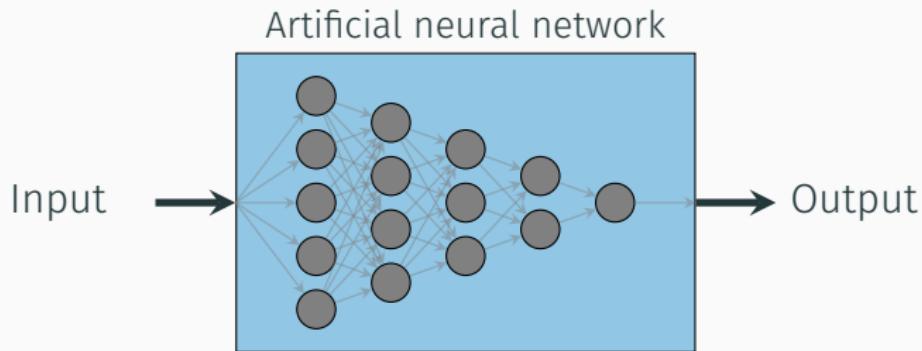
Do we need explainable AI?

AI medicine ethics

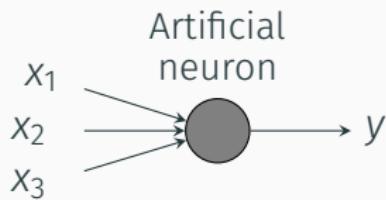
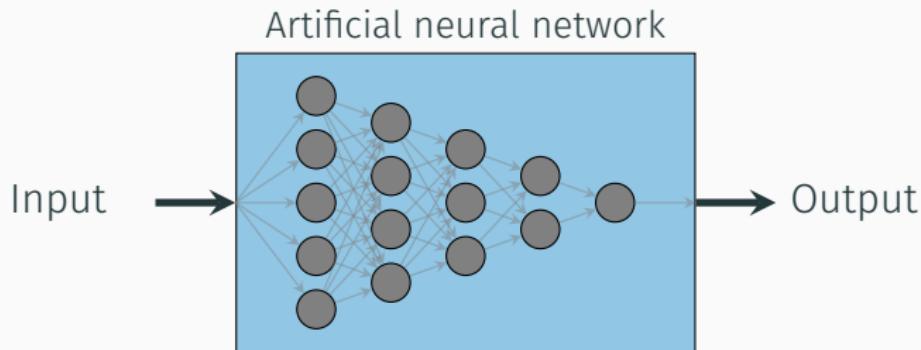
Do we need explainable AI?

Medical practitioner statistics

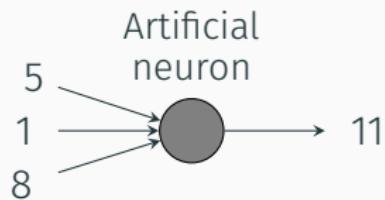
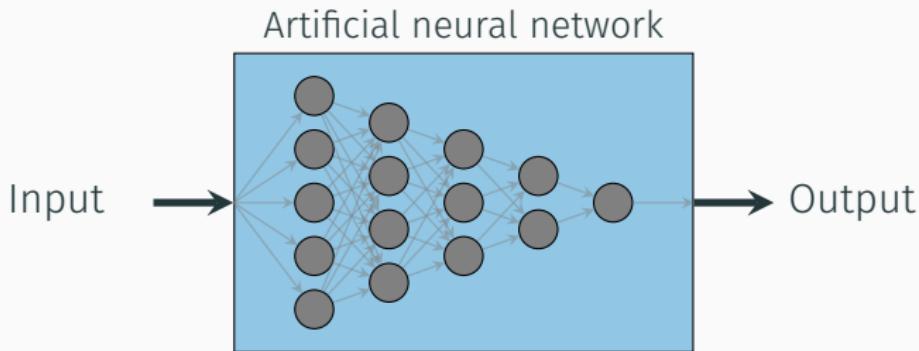
What is explainable AI?



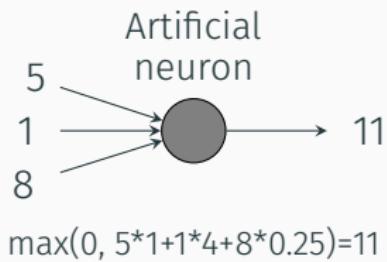
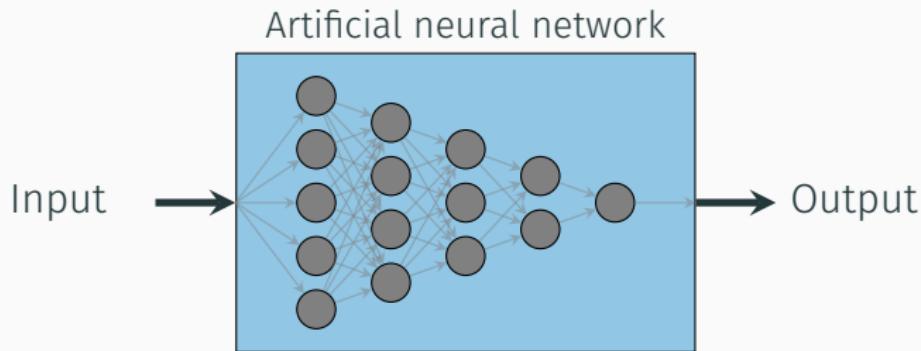
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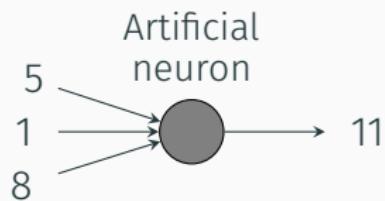
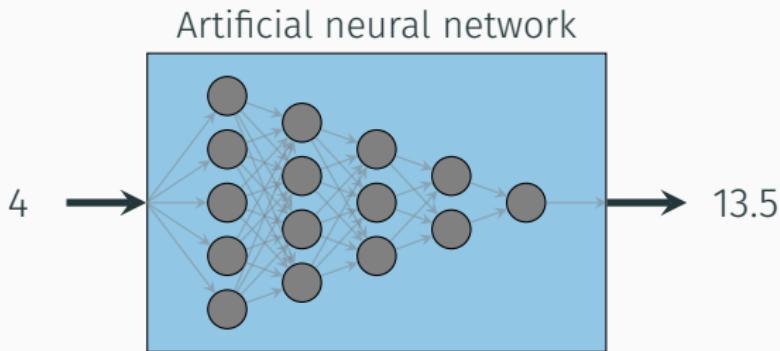
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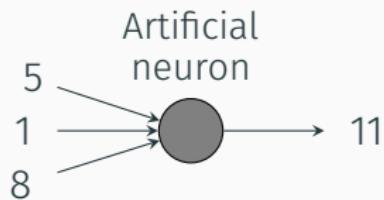
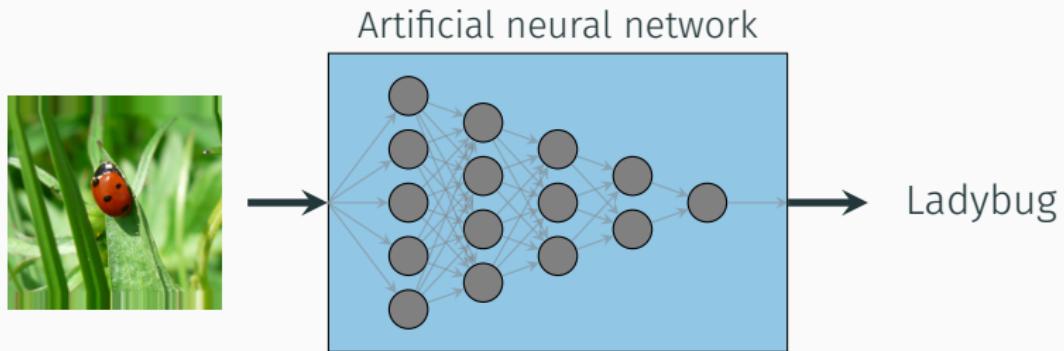
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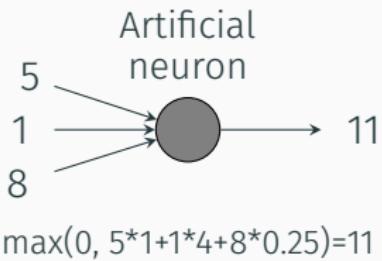
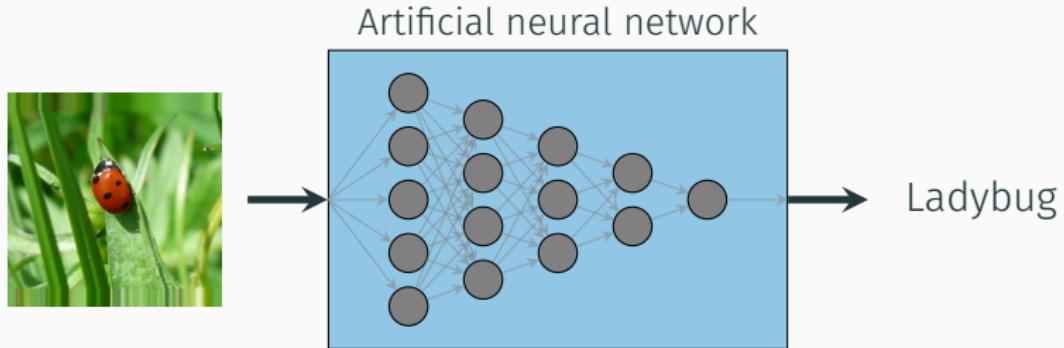
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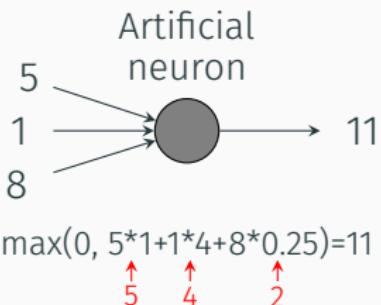
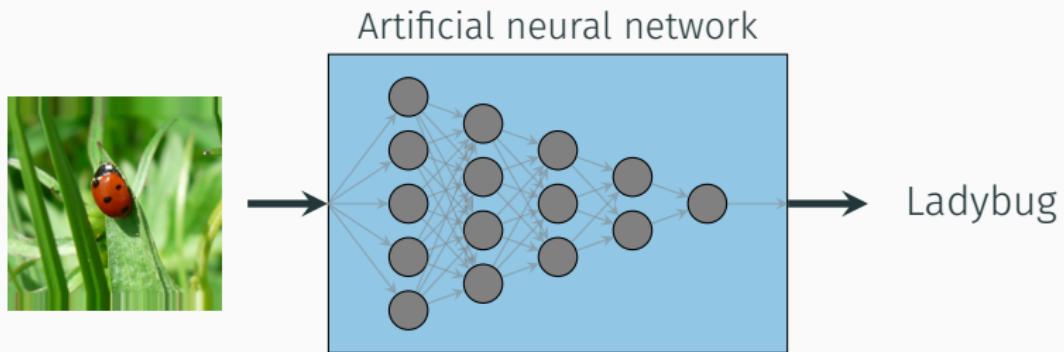
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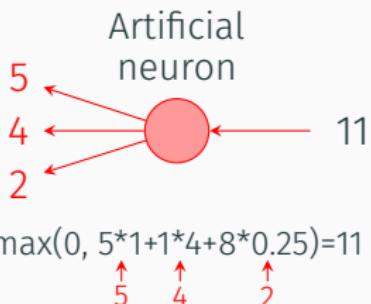
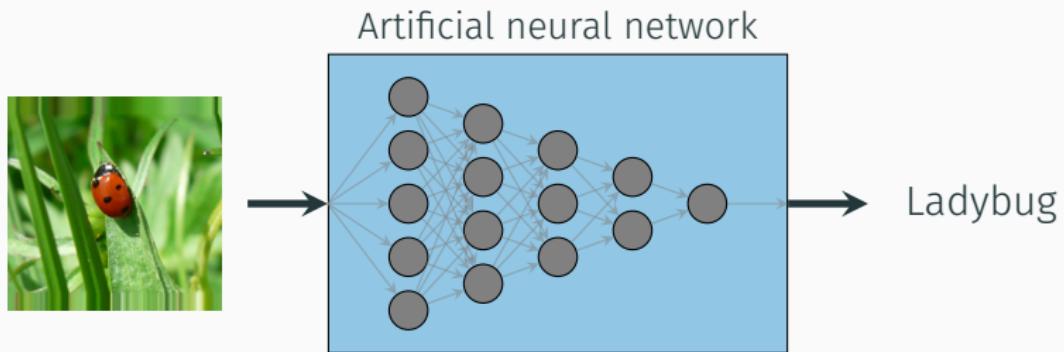
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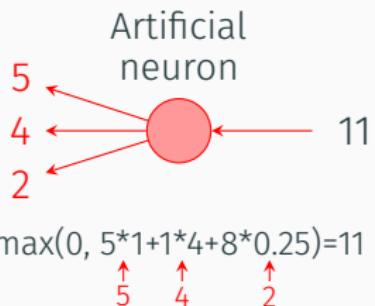
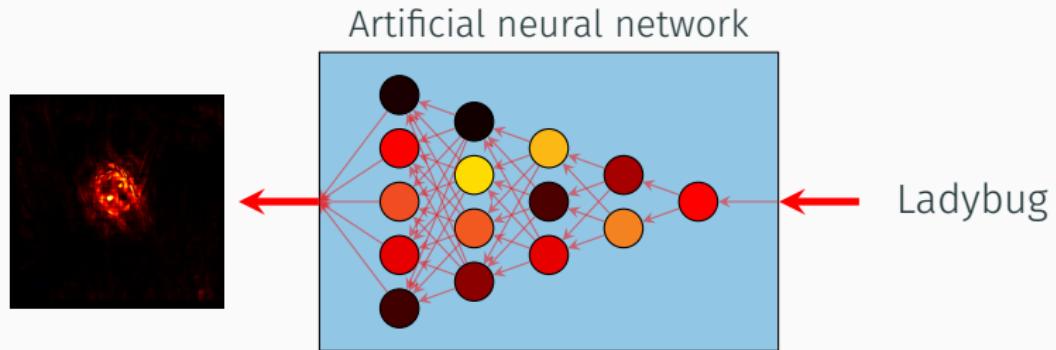
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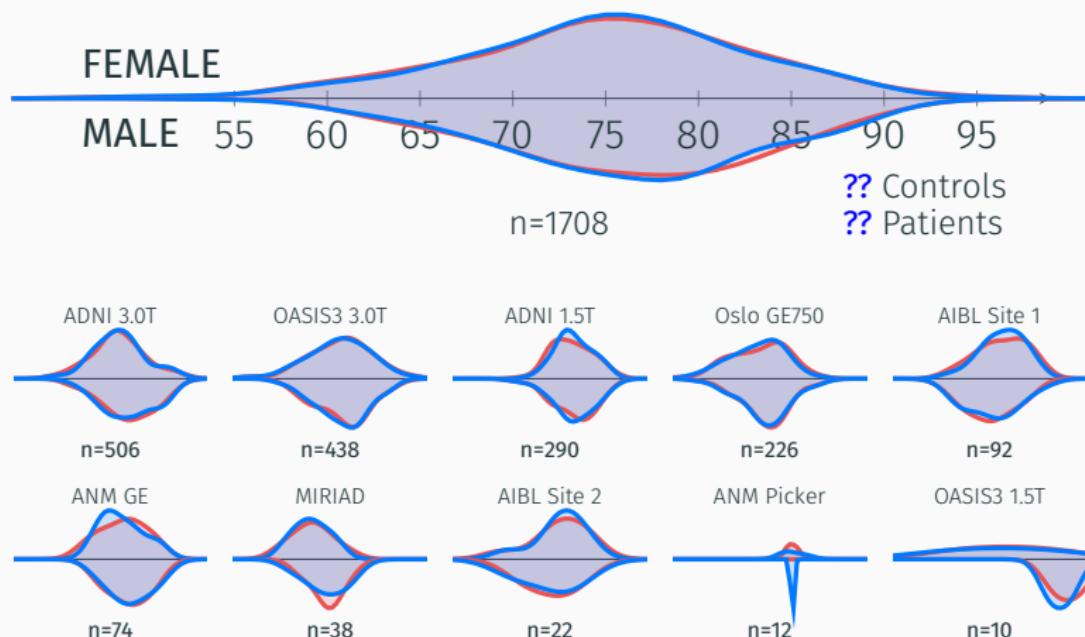
What is explainable AI?



What is explainable AI?

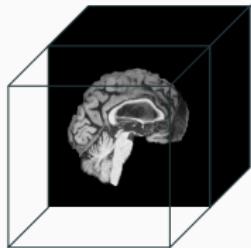


XAI and dementia

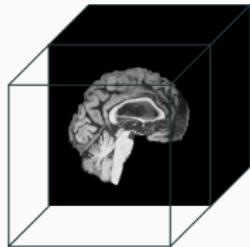


Leonardsen et al., *Constructing personalized characterizations of structural brain aberrations in patients with dementia using explainable artificial intelligence* (2024), <https://www.nature.com/articles/s41746-024-01123-7>

XAI and dementia

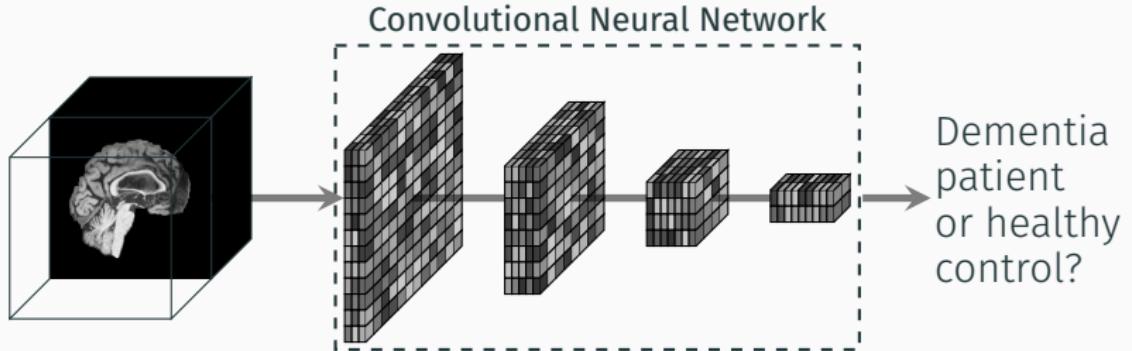


XAI and dementia

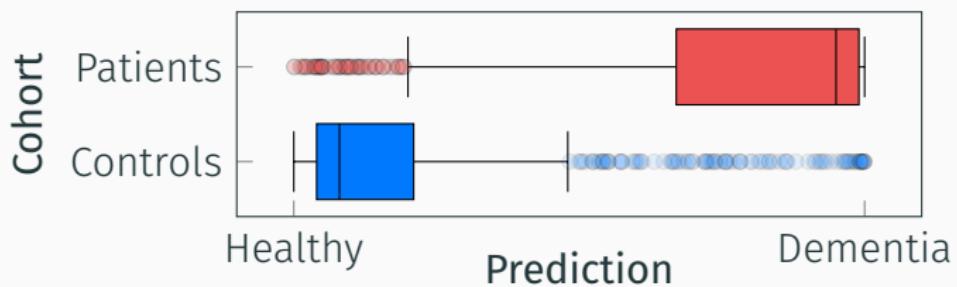
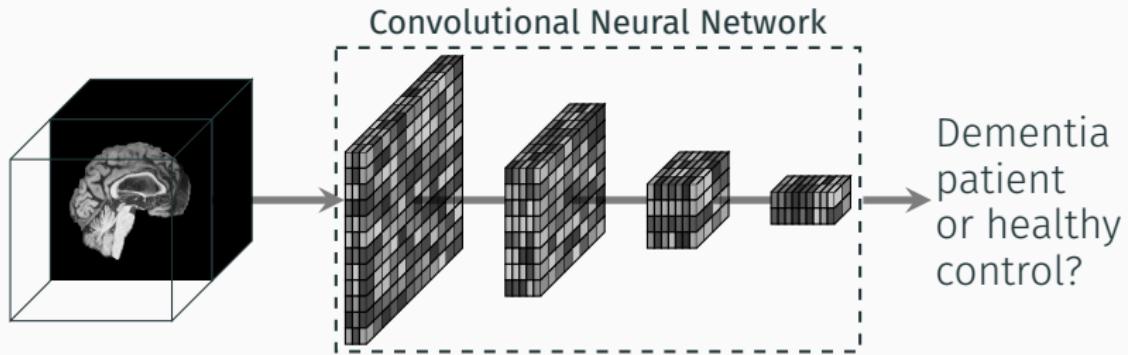


Dementia
patient
or healthy
control?

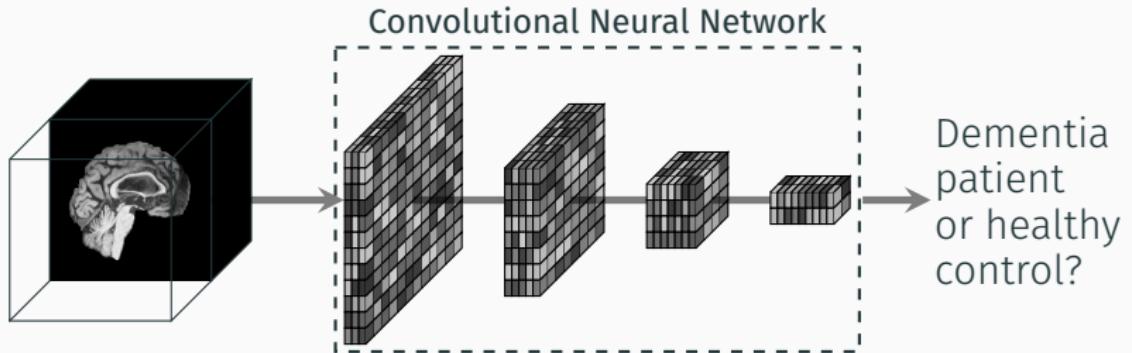
XAI and dementia



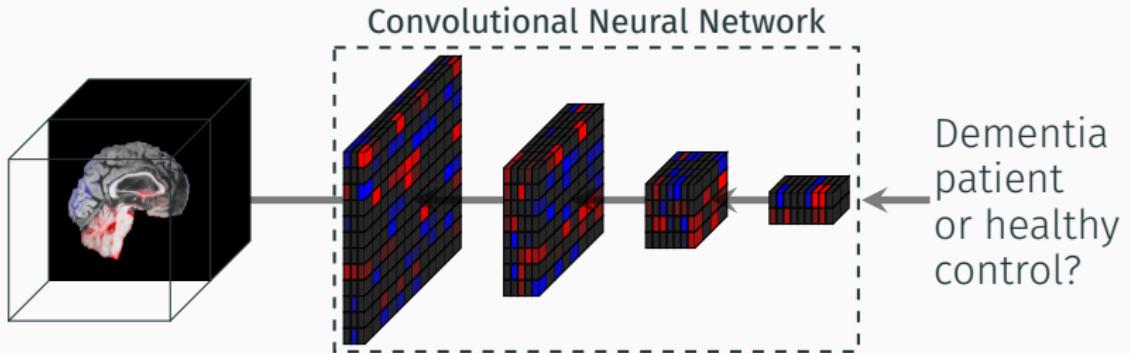
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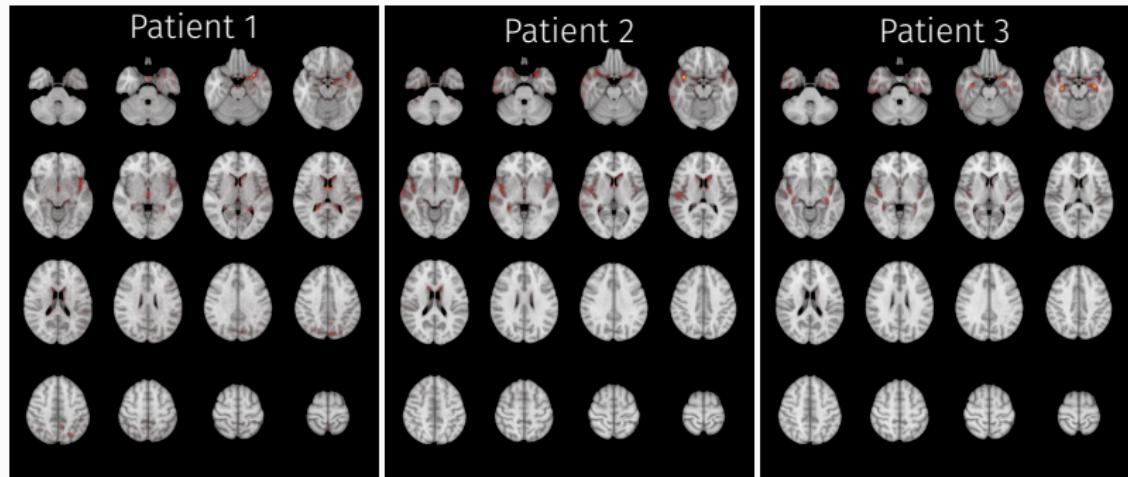
XAI and dementia



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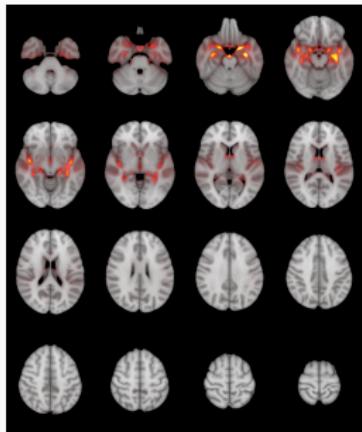


XAI and dementia: Validation



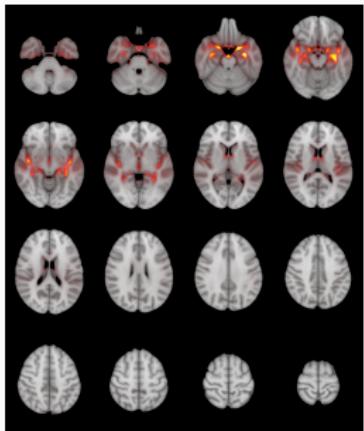
XAI and dementia: Validation

Explainable AI

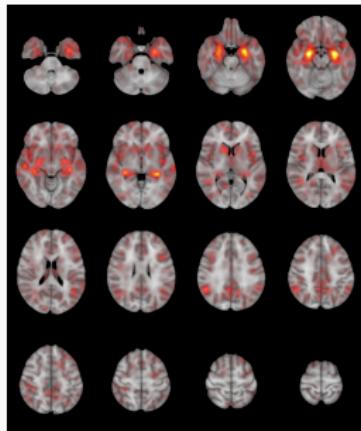


XAI and dementia: Validation

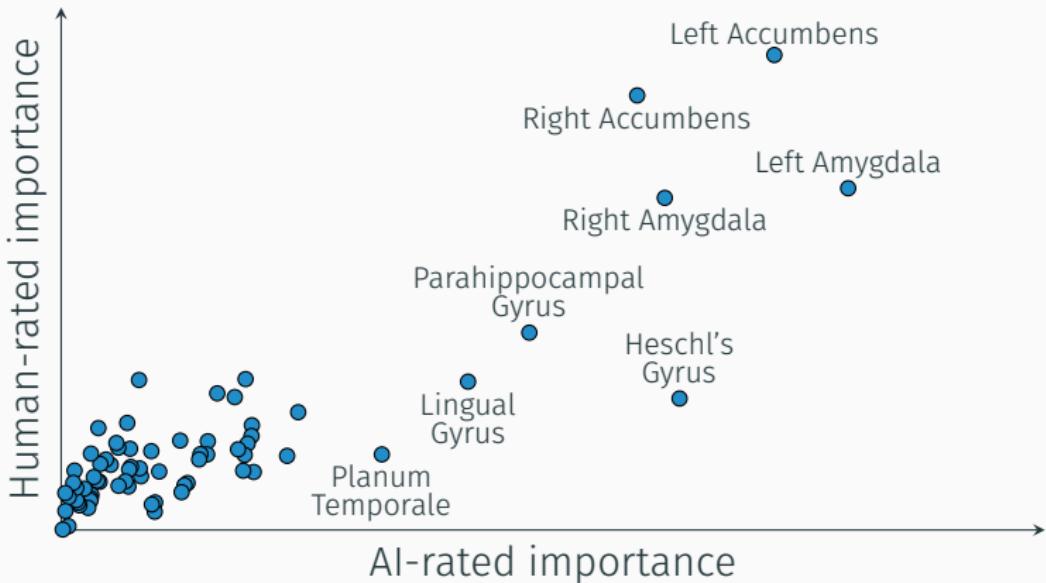
Explainable AI



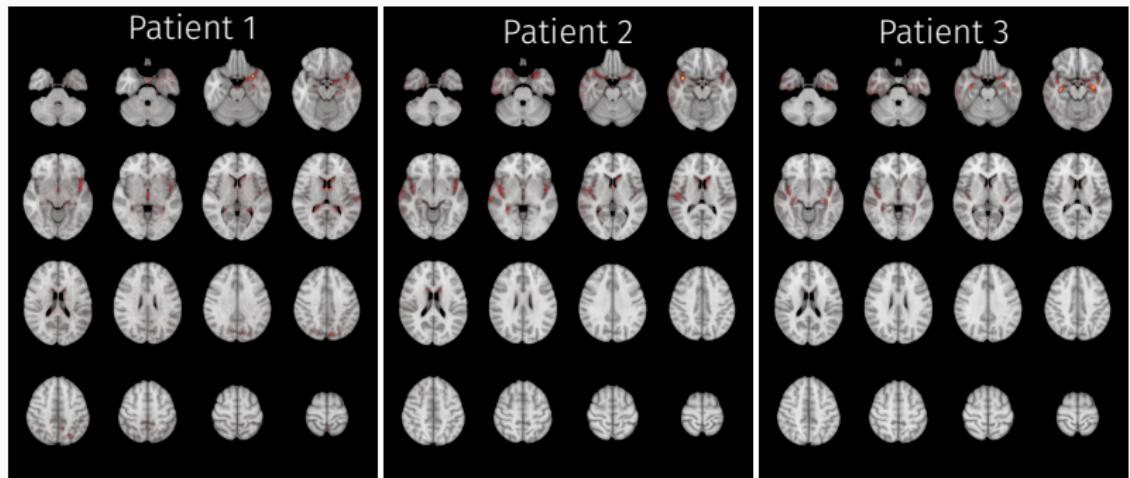
Human researchers



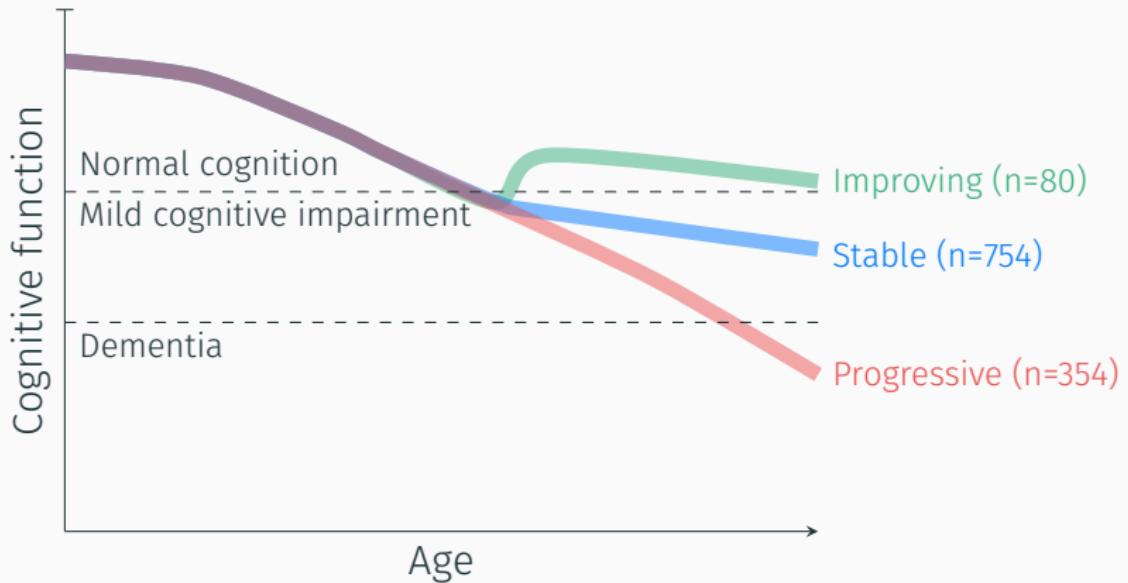
XAI and dementia: Validation



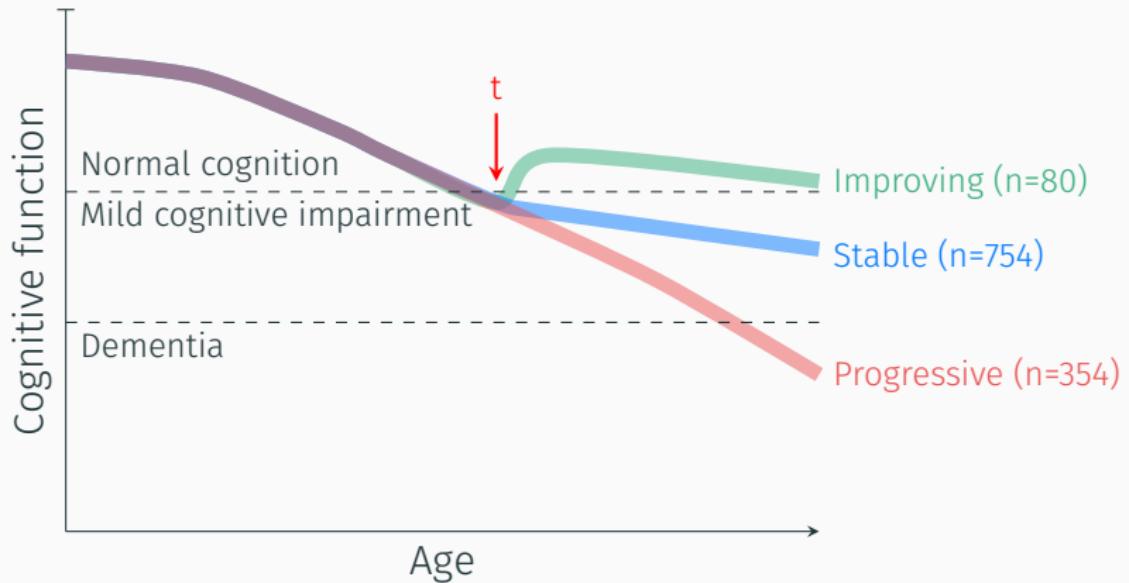
XAI and dementia: Clinical applications



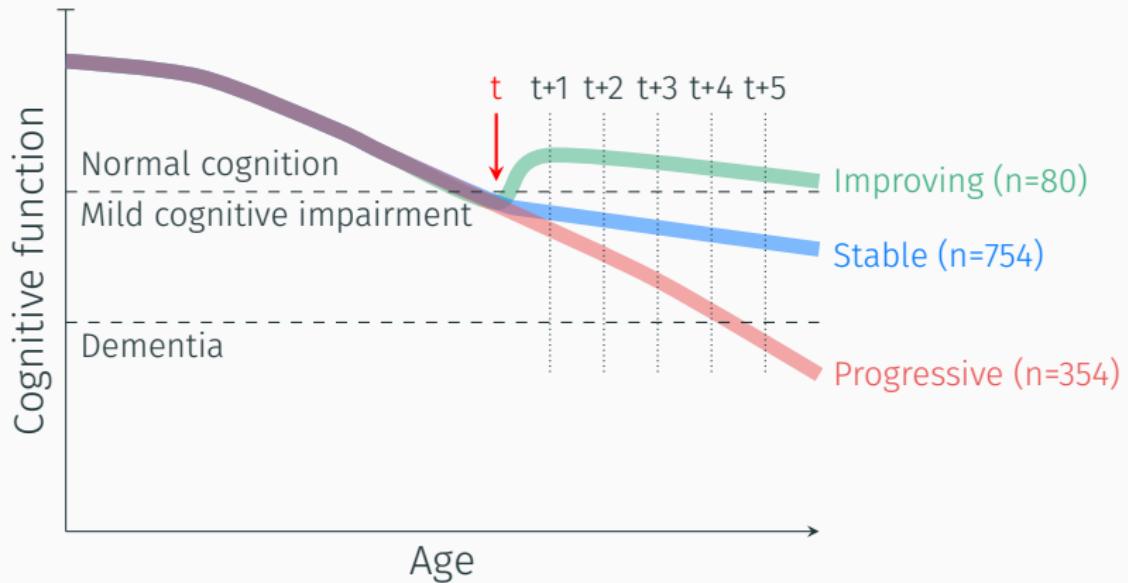
XAI and dementia: Clinical applications



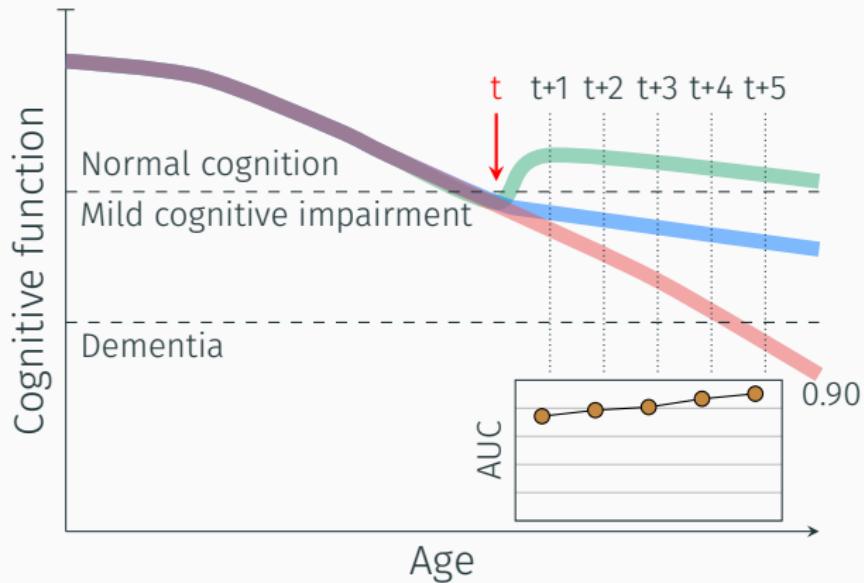
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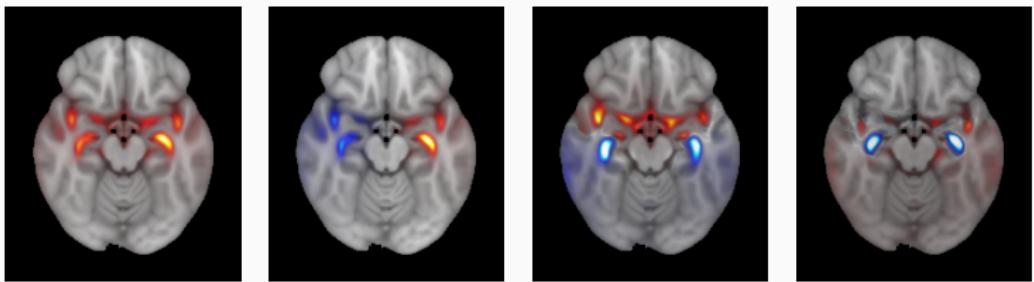
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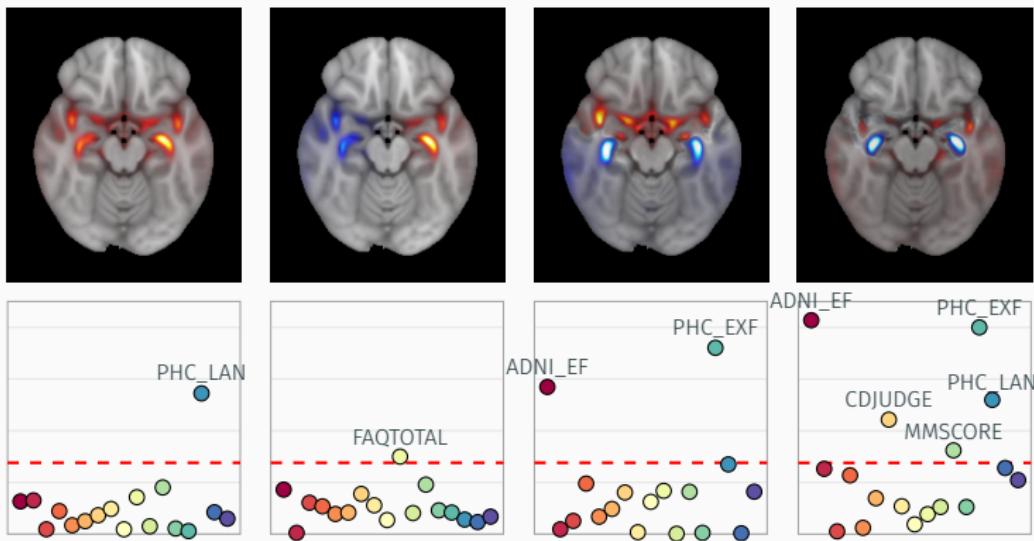
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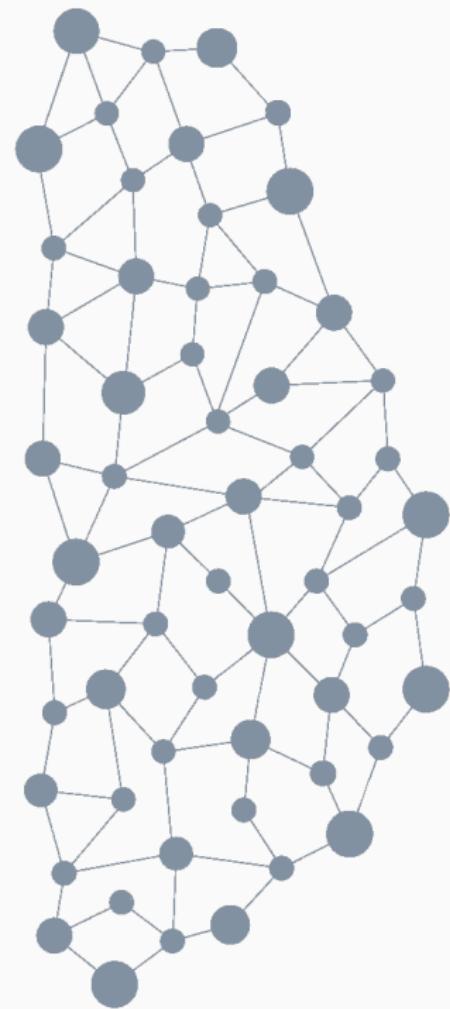


XAI and dementia: Clinical applications



XAI and dementia: Clinical applications





Thank you for your attention!
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