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Transforming Healthcare

AI in diagnostic imaging: why?

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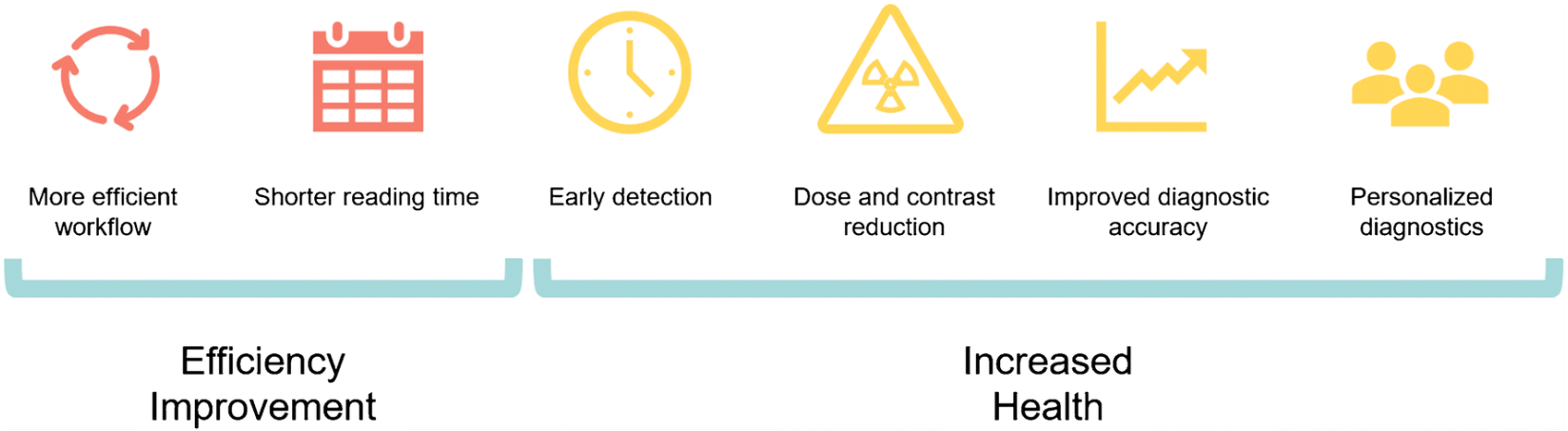
Artificial Intelligence in diagnostic imaging: why?



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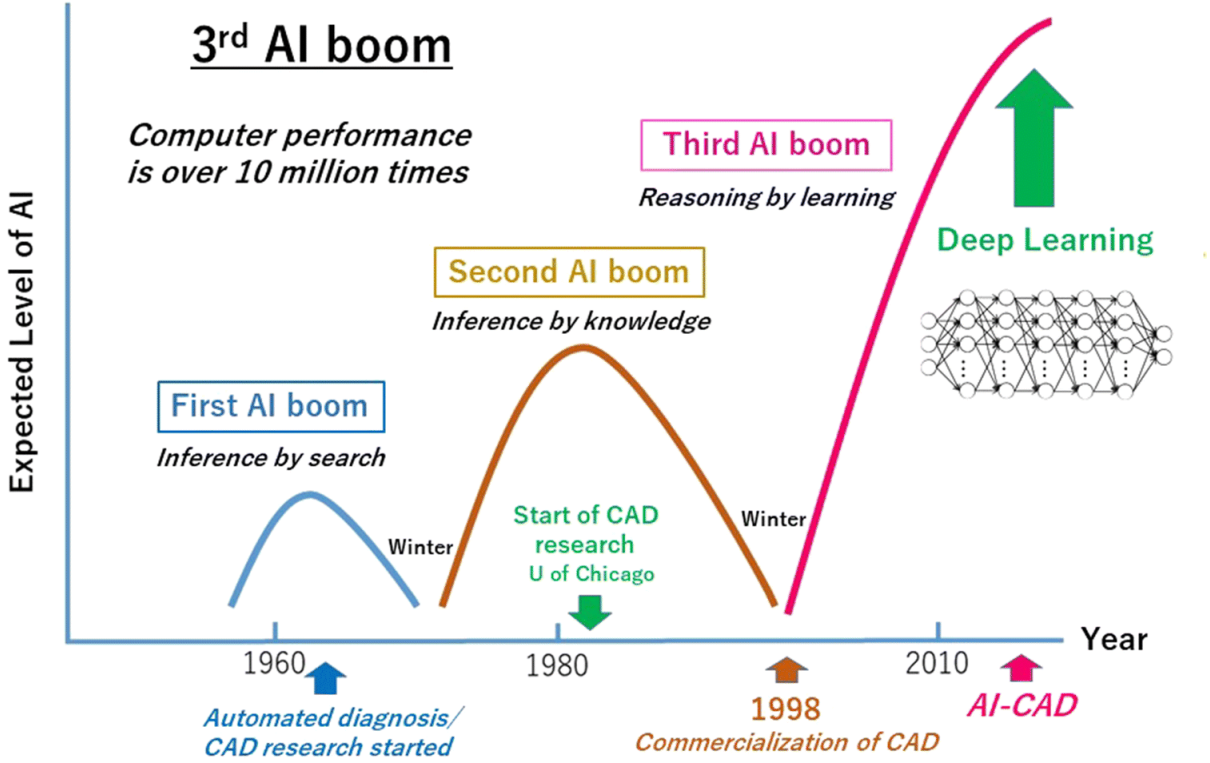

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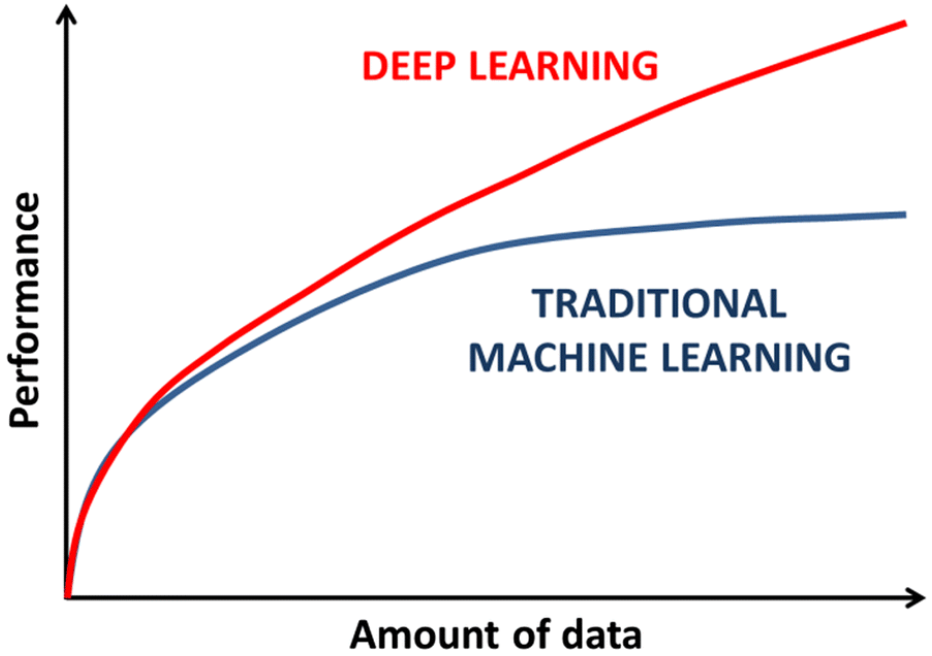
Machine learning and deep learning performance



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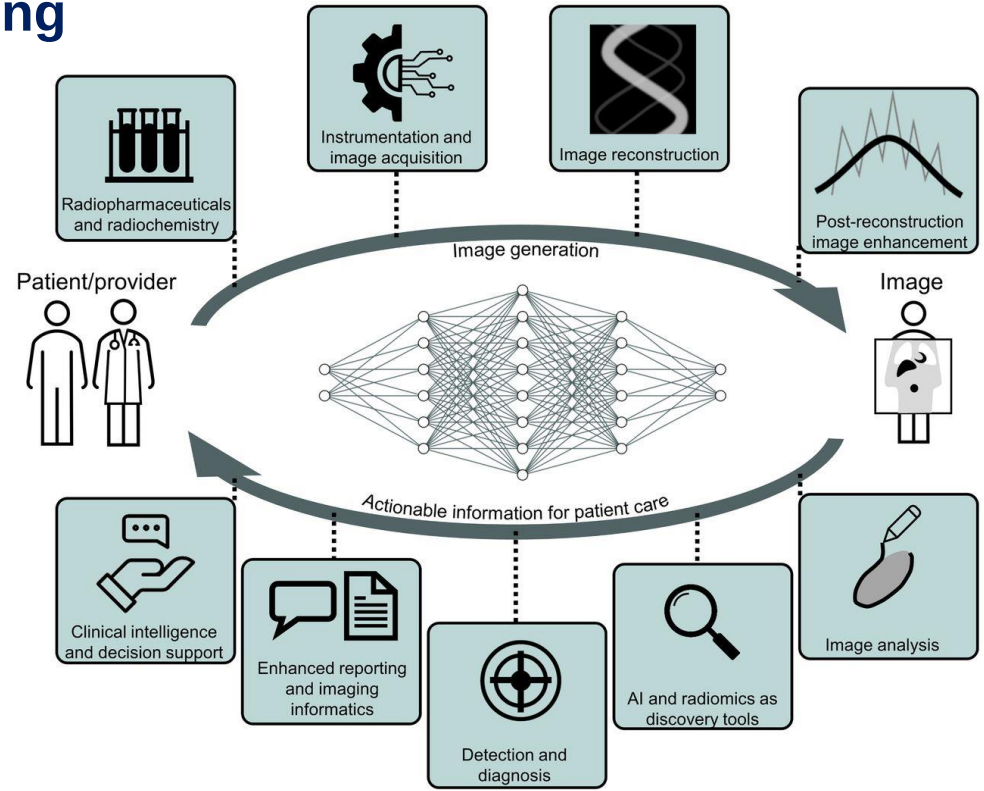
Potential applications of Artificial Intelligence in diagnostic imaging



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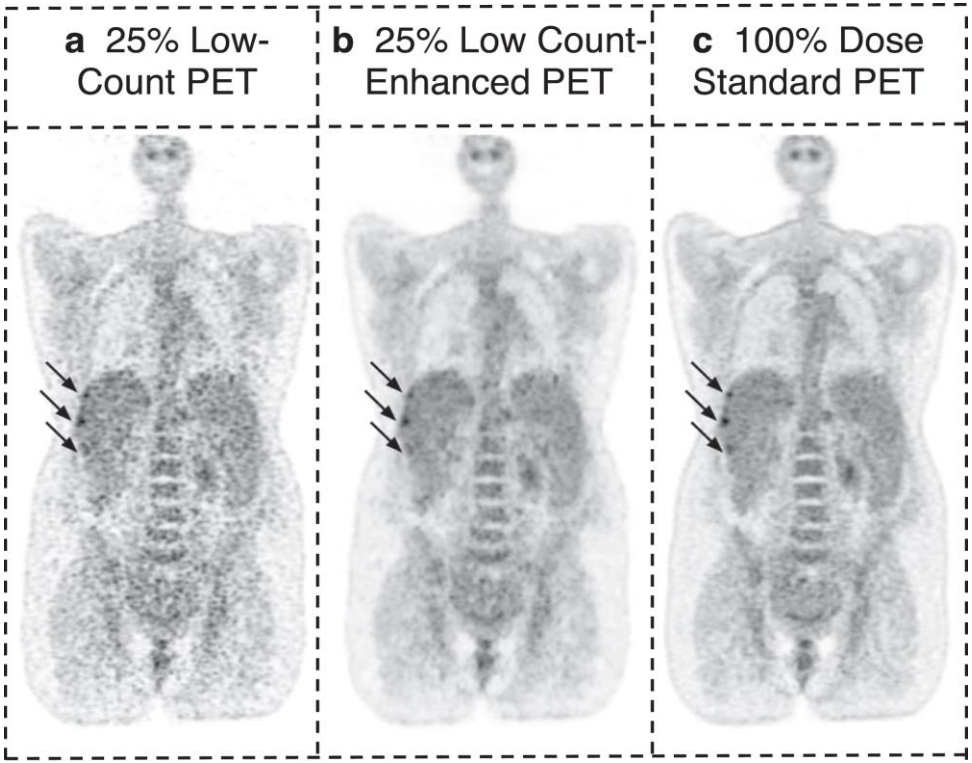
AI applications for image quality restoration



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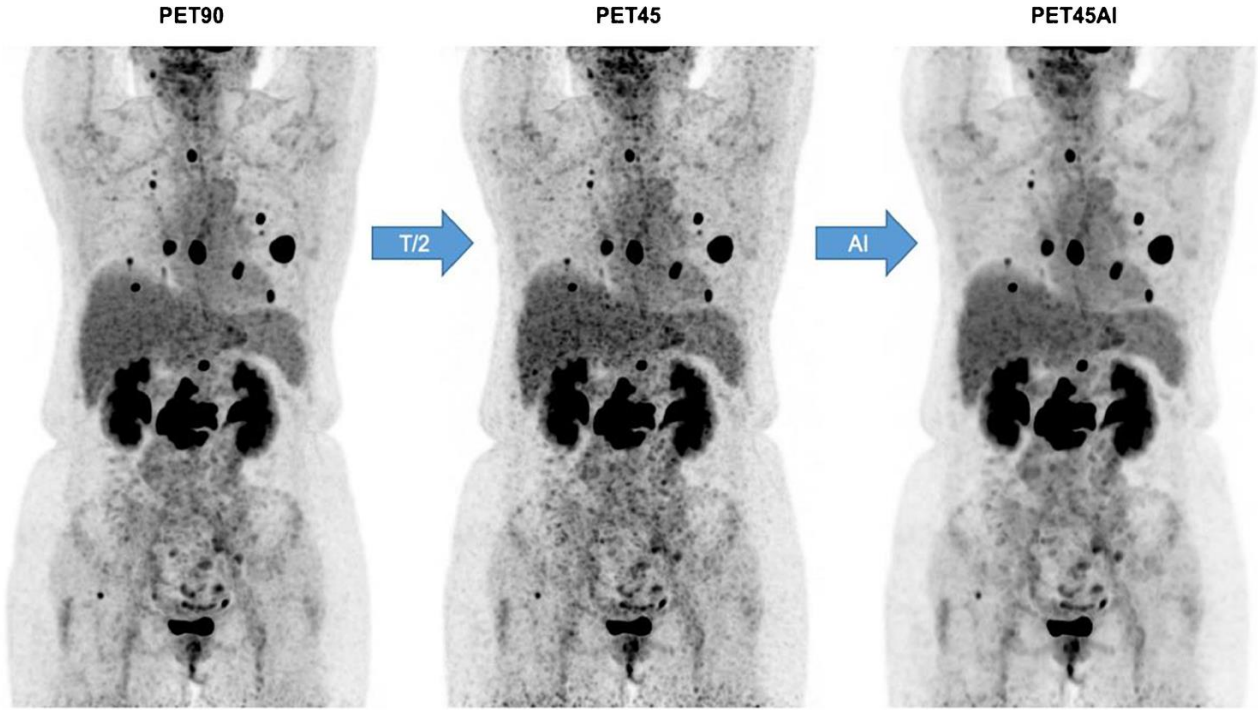
AI applications for image quality restoration



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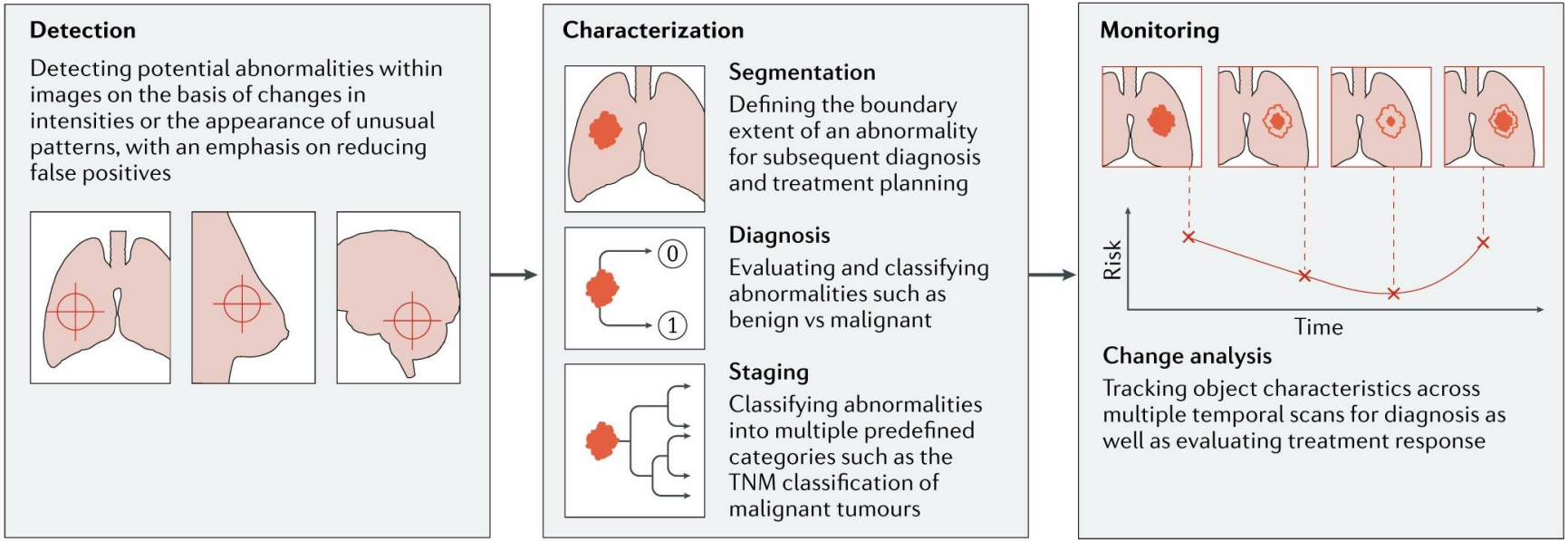
Artificial Intelligence in lesion detection and diagnosis



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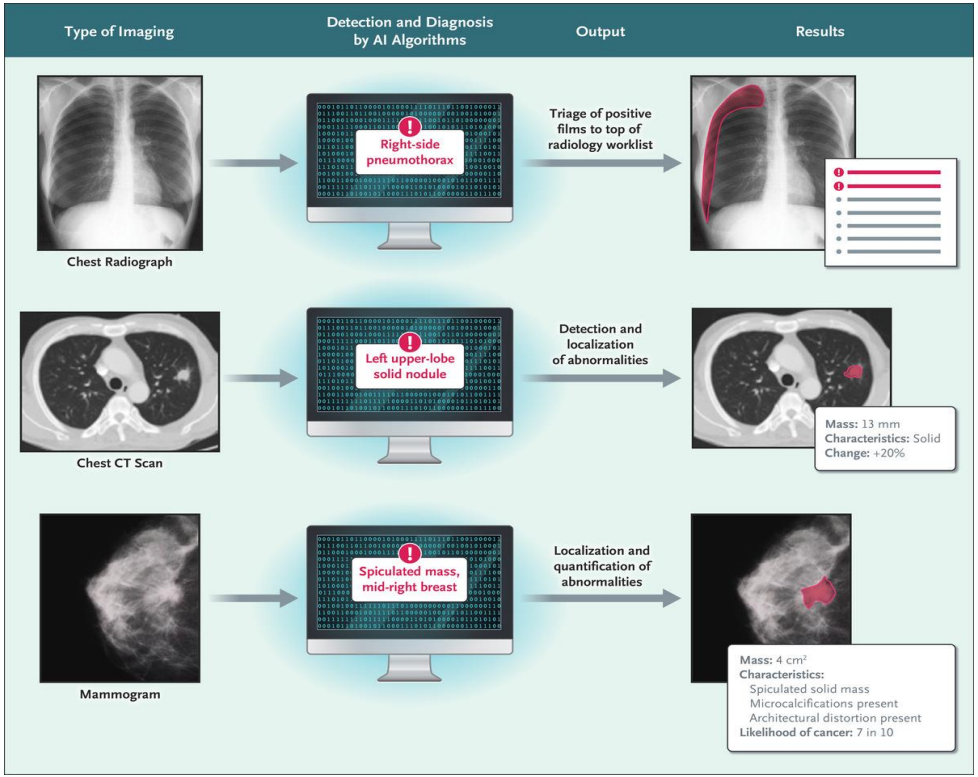
Computer-Aided Detection (CADe) and Diagnosis (CADx) systems



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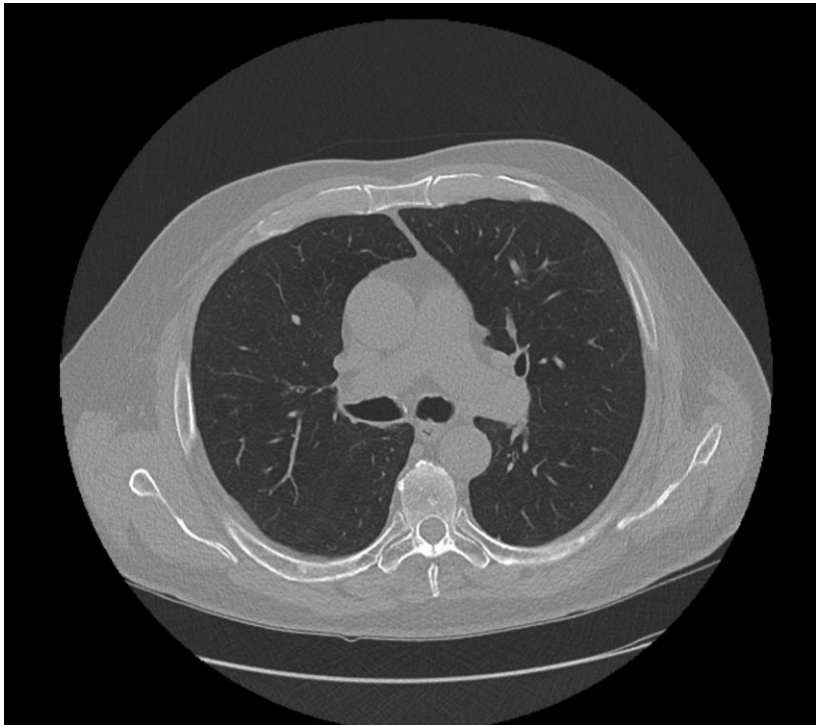
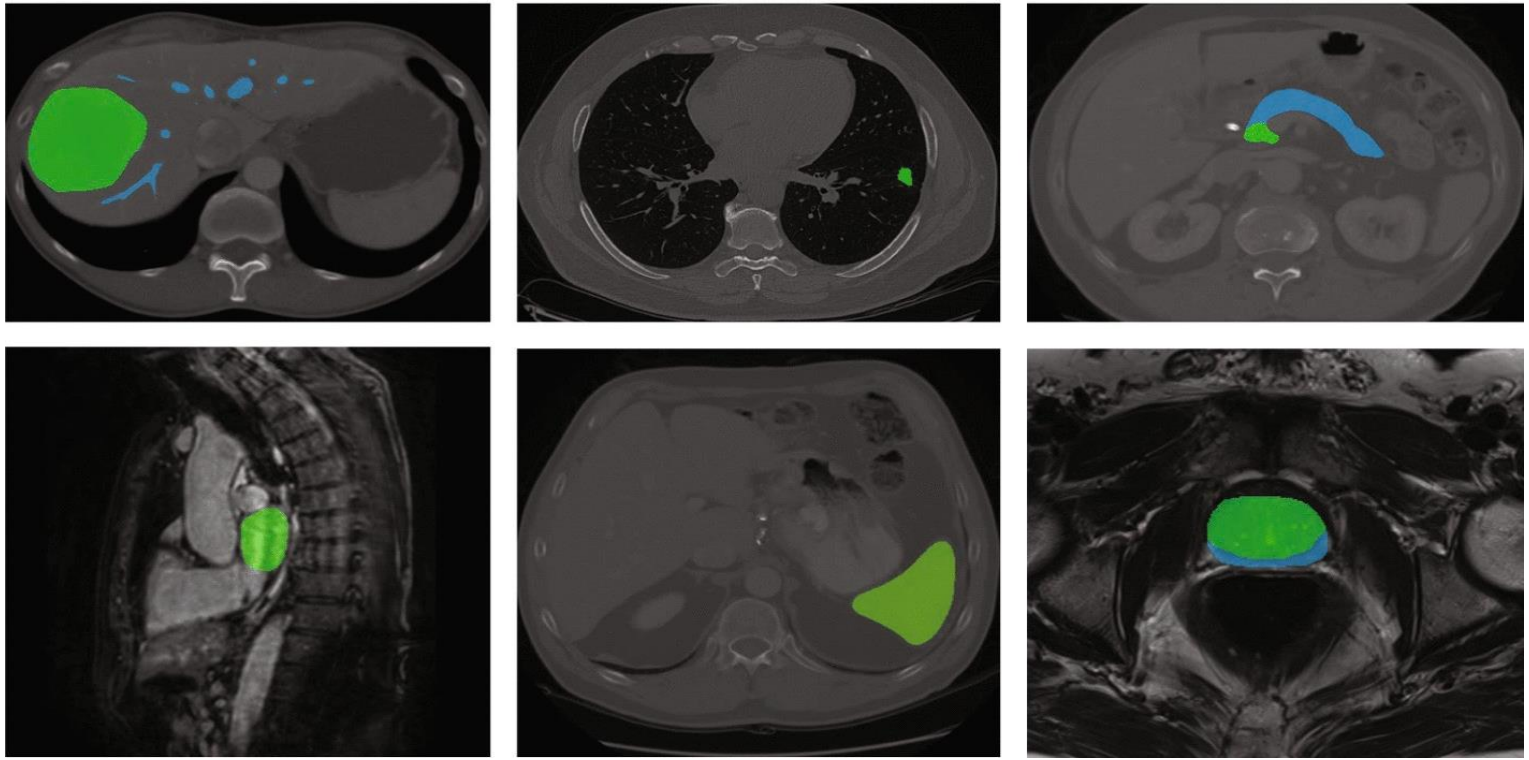
Detection: Computer-Aided Detection (CADe)



AI applications for segmentation



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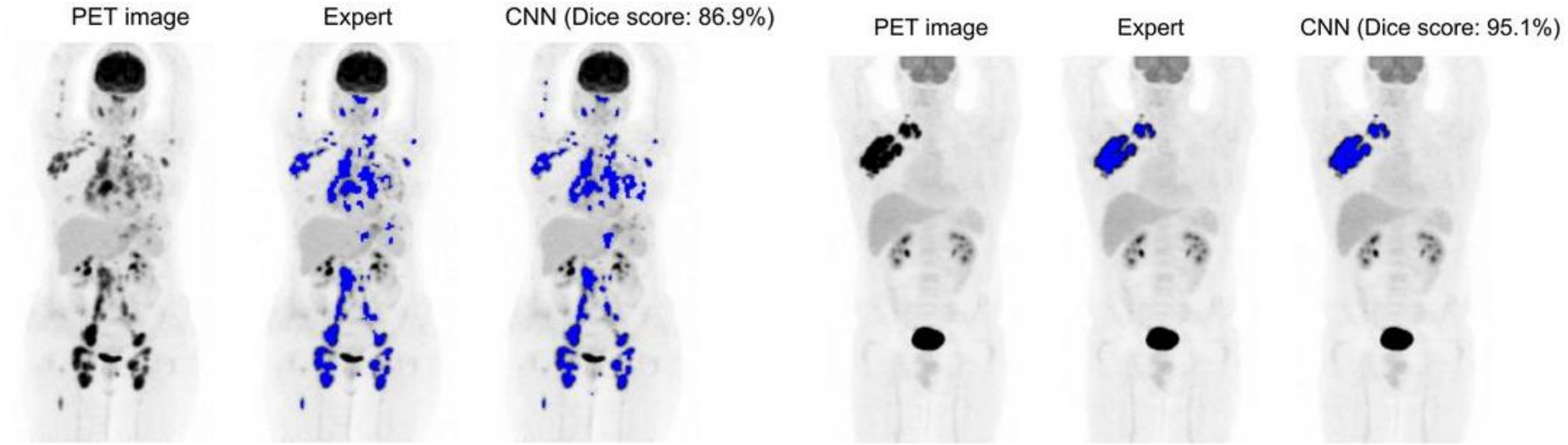
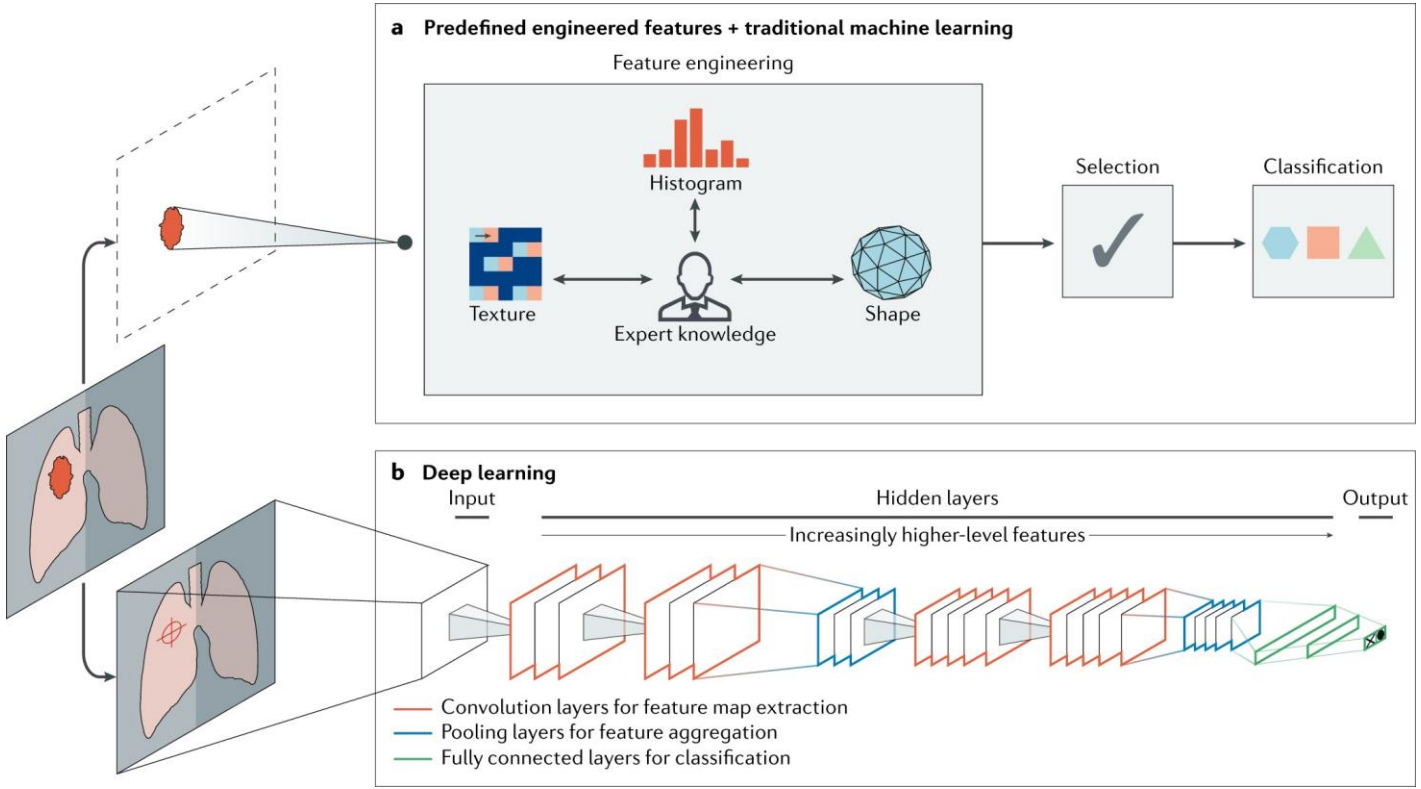
AI applications for segmentation



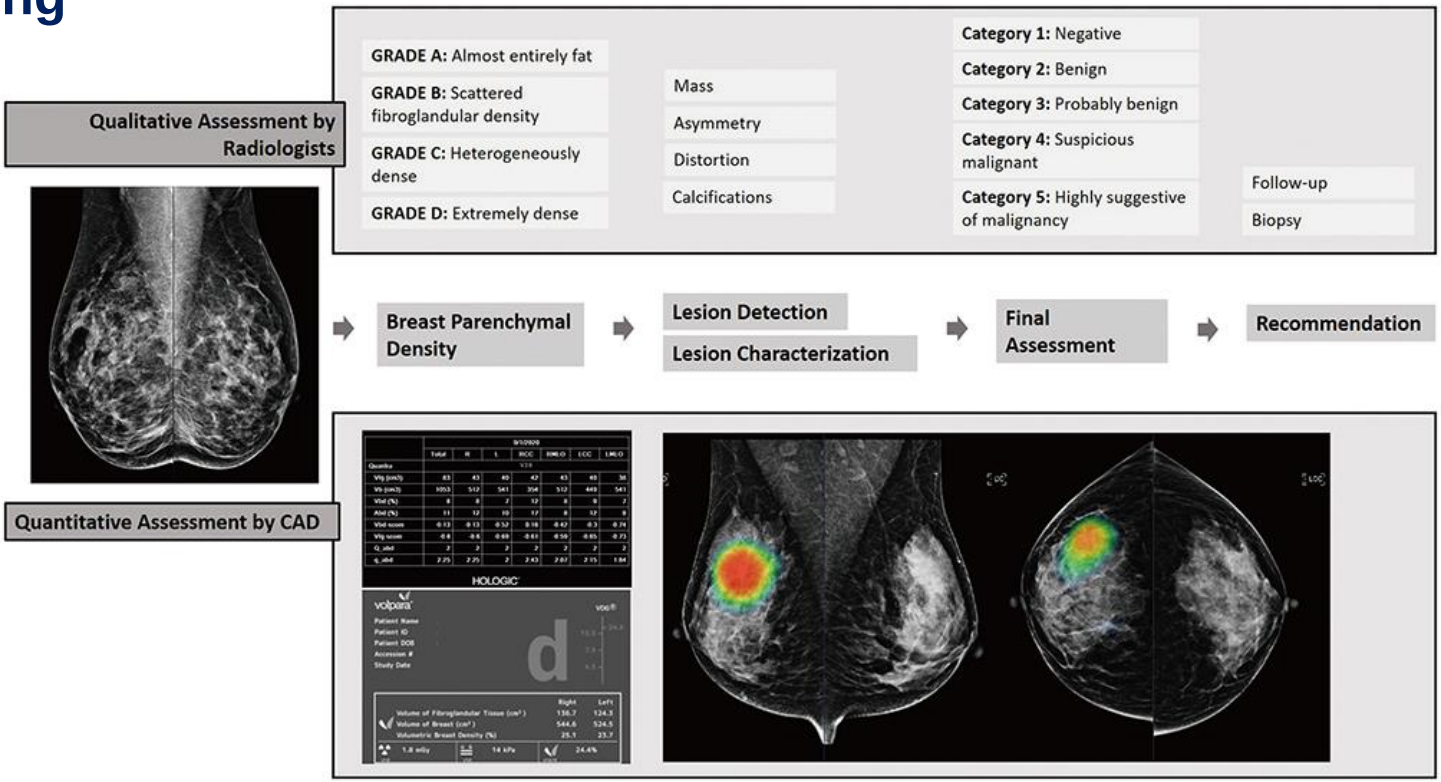
Girum K.B. et al. 8F-FDG PET Maximum-Intensity Projections and Artificial Intelligence: A Win-Win Combination to Easily Measure Prognostic Biomarkers in DLBCL. Journal of Nuclear Medicine 63: 1925-1932 (2022)

Diagnosis: Machine Learning vs Deep Learning



Hosny A, et al. Artificial intelligence in radiology. *Nature Reviews Cancer 2018 18:8* **18**, 500–510 (2018)

Diagnosis: AI applied to mammography for breast cancer screening



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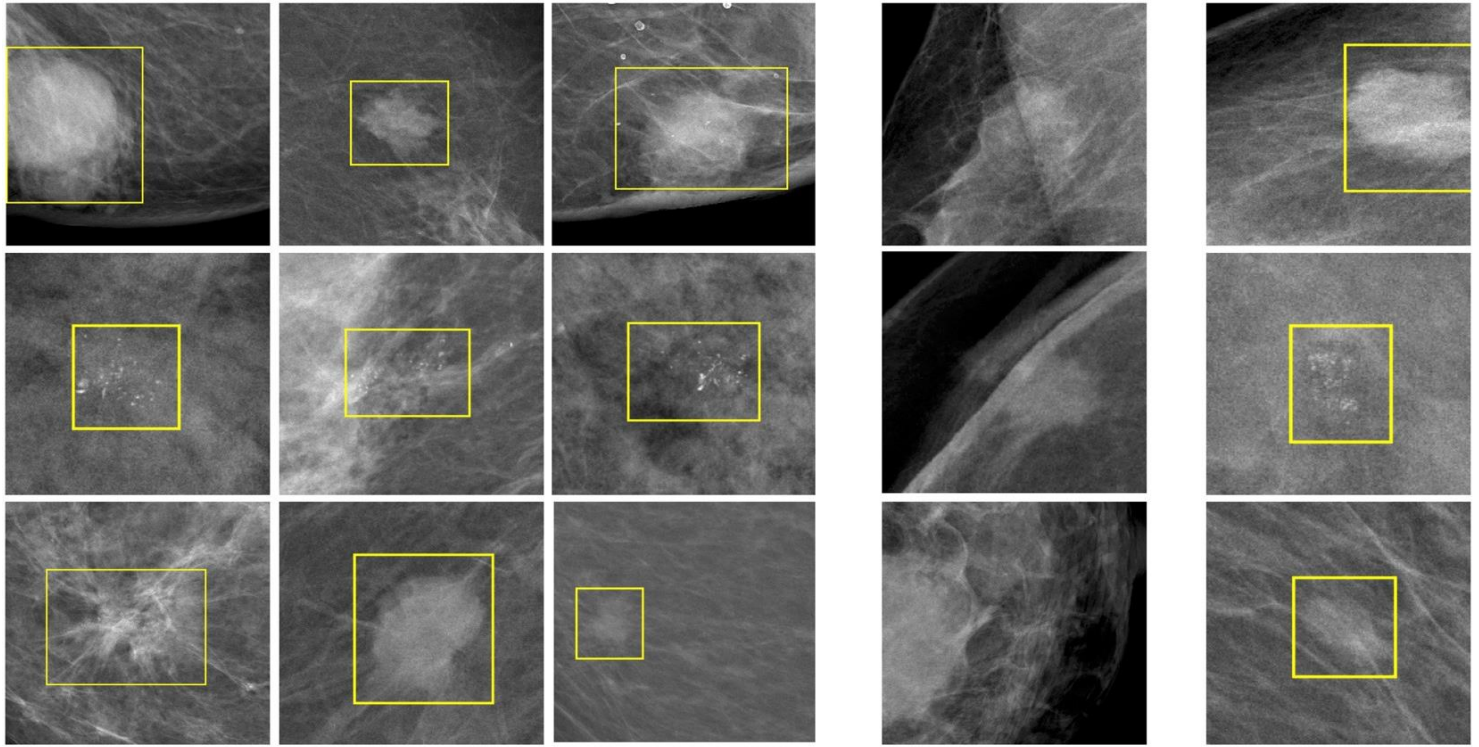
Malignant

Benign



True positives

False negatives

False positives

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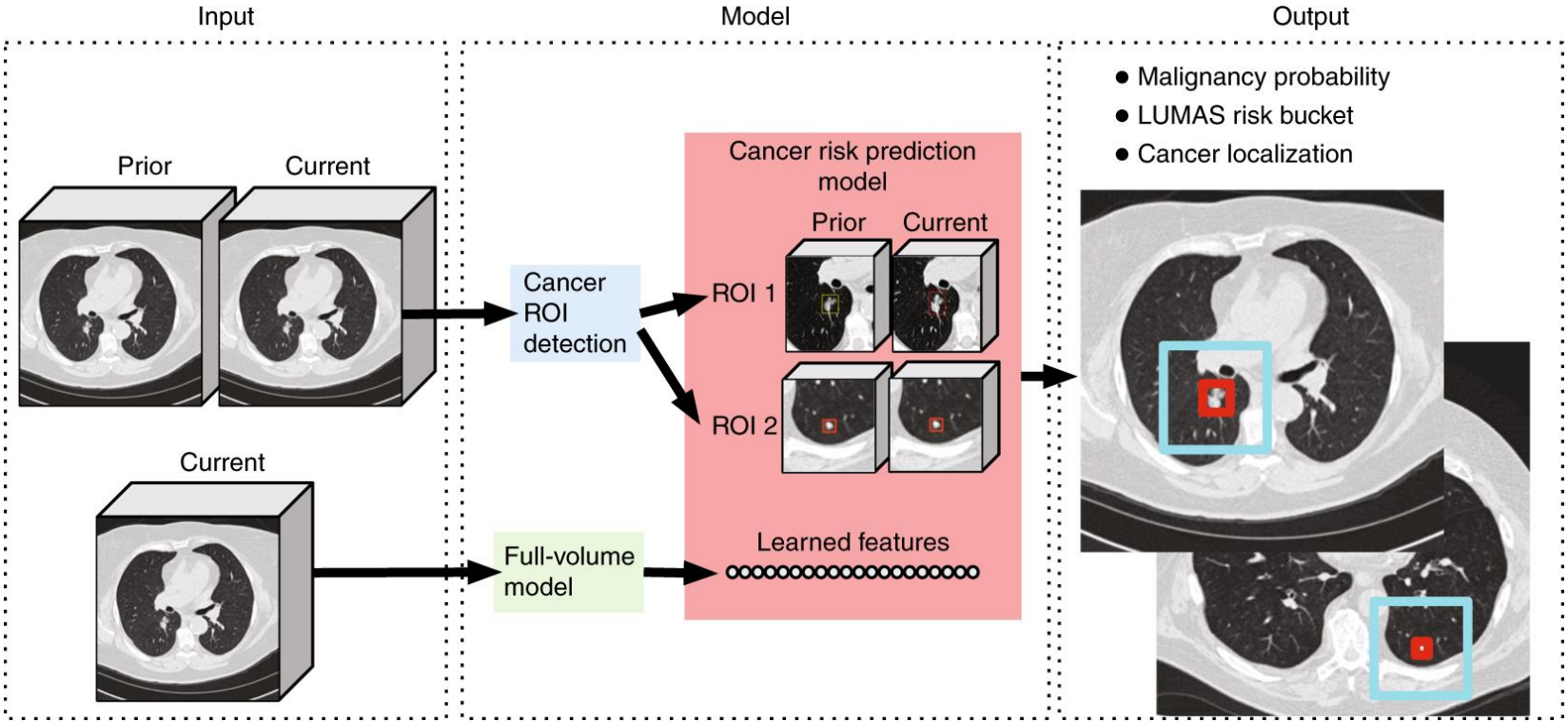
Diagnosis: AI applied to low-dose chest CT for lung cancer screening



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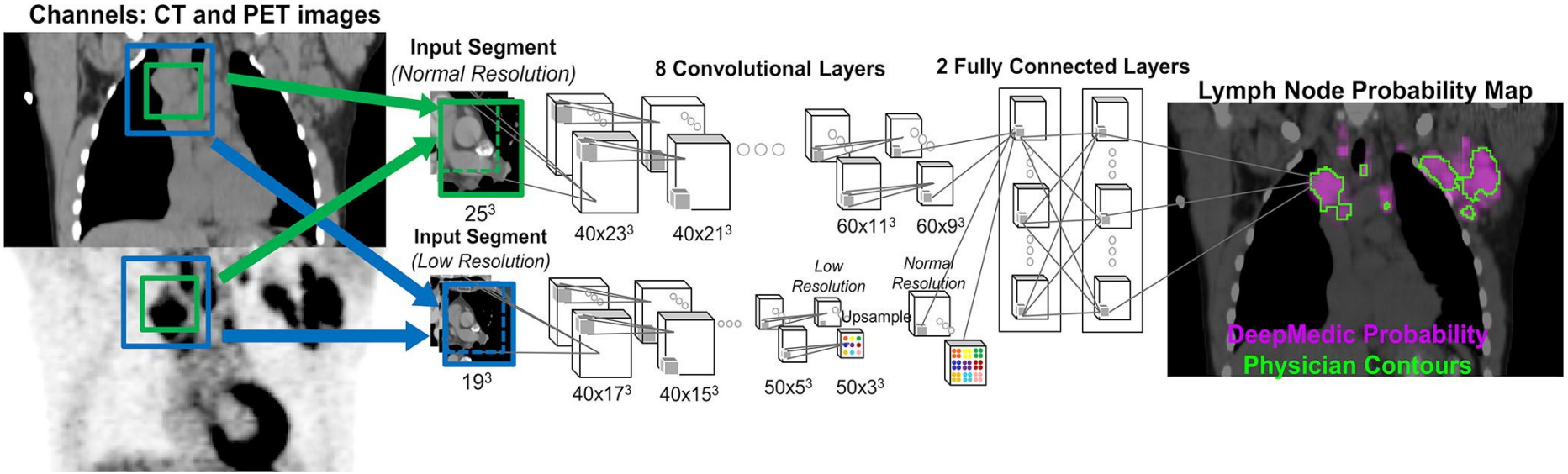
Staging: AI applied to [^{18}F]FDG PET/CT in lymphoma



Weisman, A. J. *et al.* Convolutional neural networks for automated pet/ct detection of diseased lymph node burden in patients with lymphoma. *Radiol Artif Intell* **2**, 1–2 (2020).

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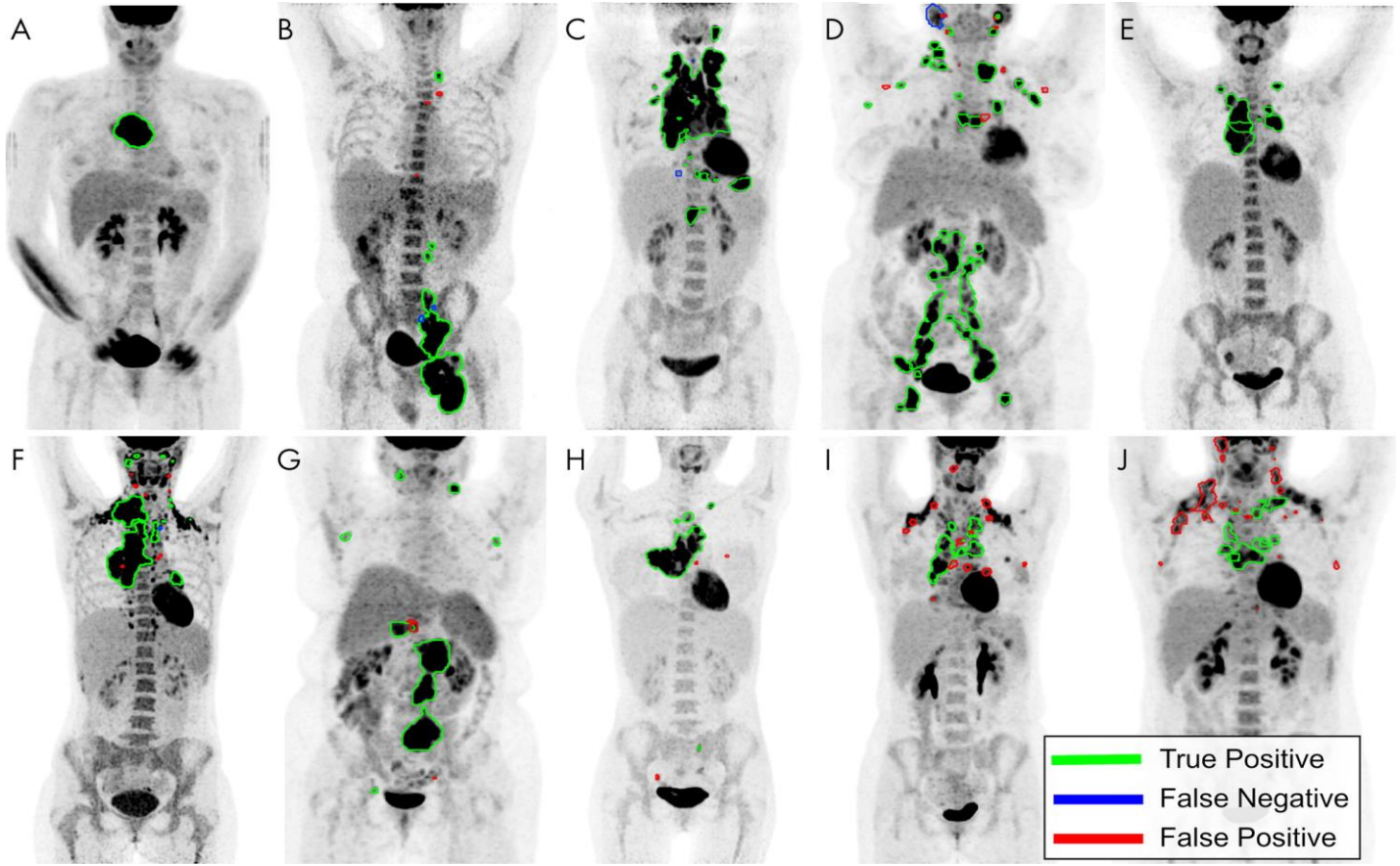

Weisman, A. J. *et al.* Convolutional neural networks for automated pet/ct detection of diseased lymph node burden in patients with lymphoma. *Radiol Artif Intell* **2**, 1–2 (2020).

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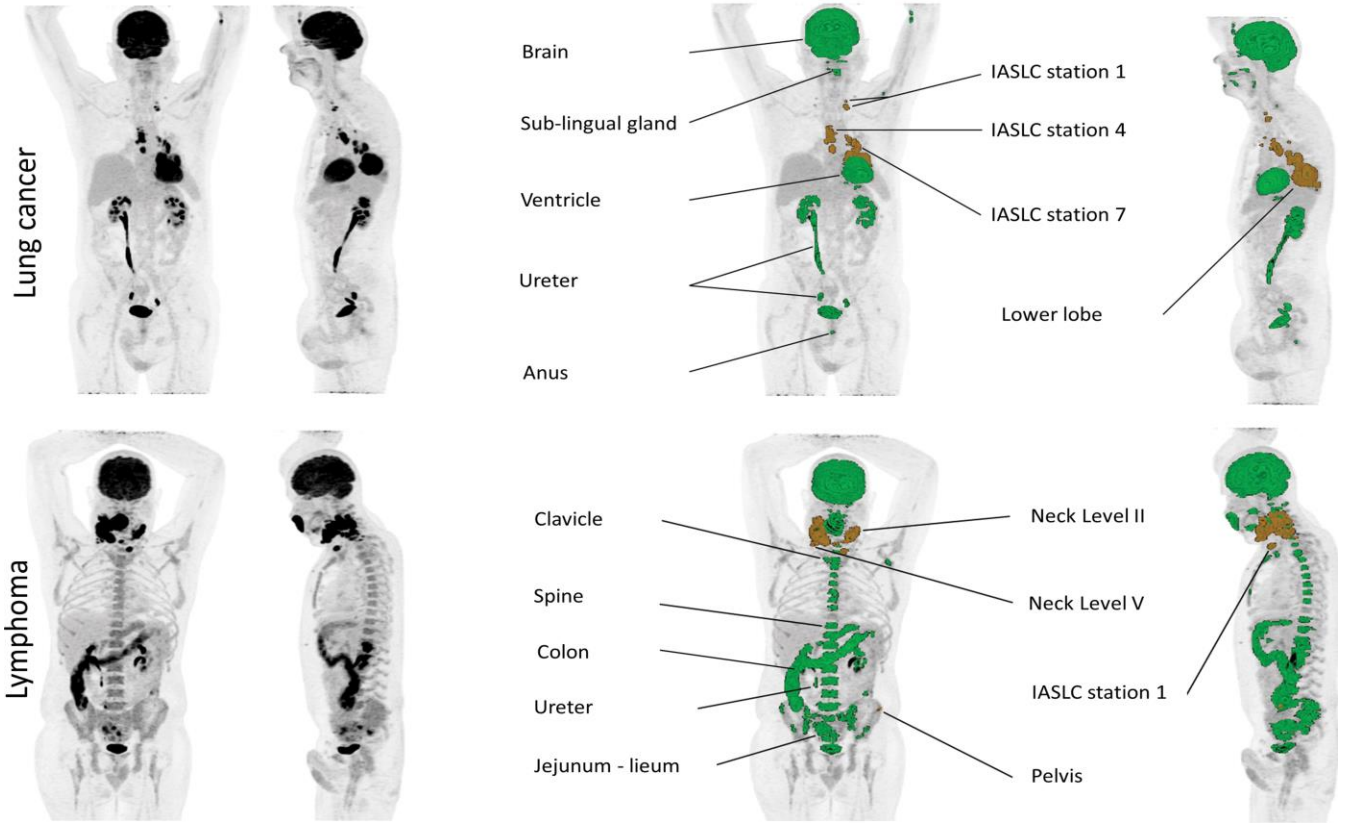
Non-suspicious

Suspicious



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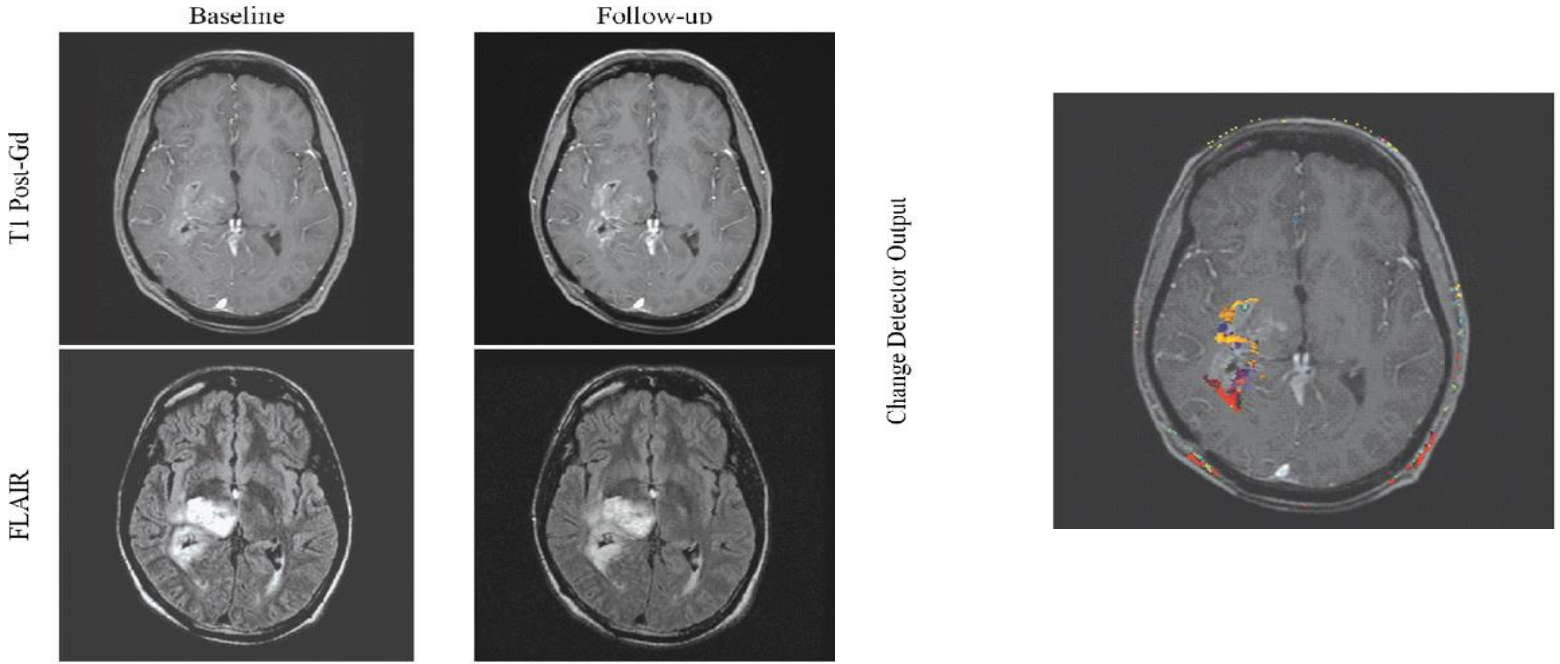
Monitoring: AI applied to serial MRI studies in brain tumours



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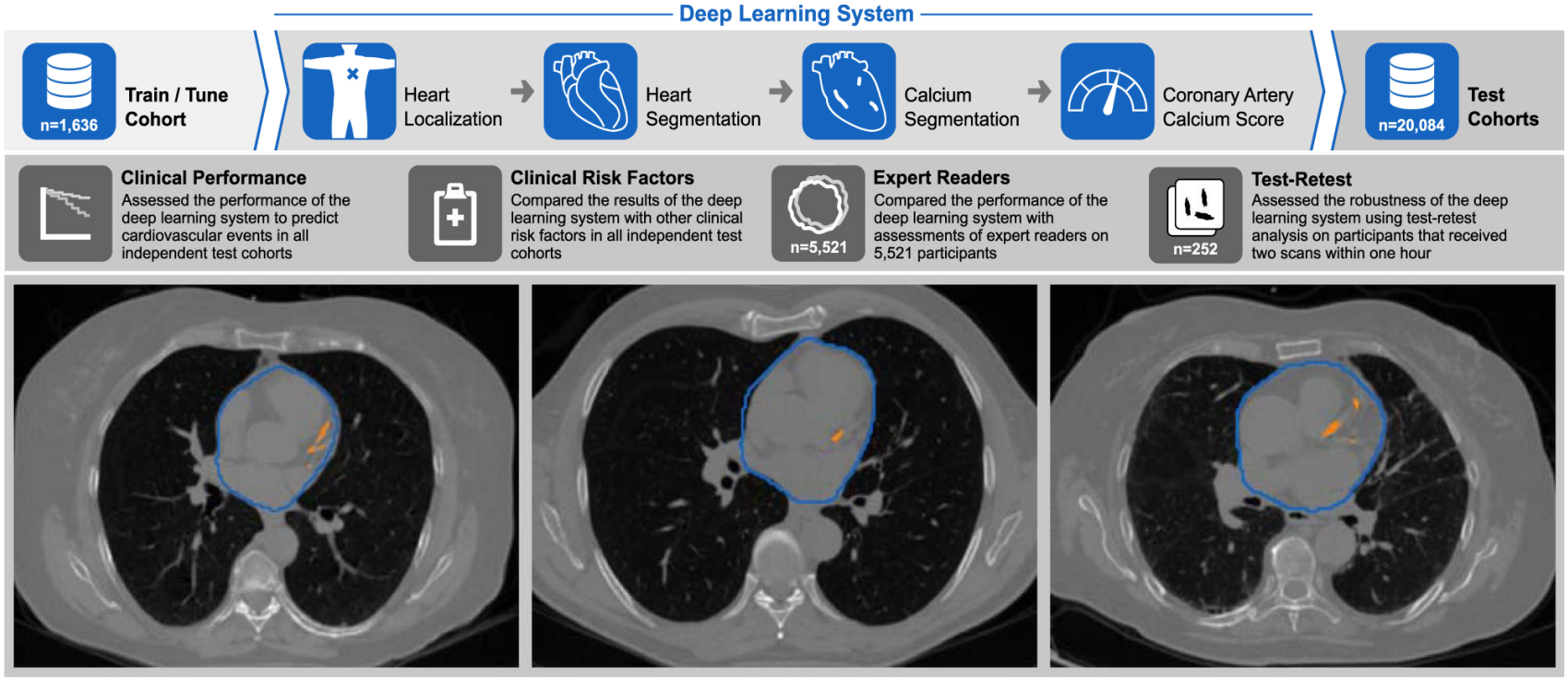
Risk prediction: AI applied to chest CT for cardiovascular risk



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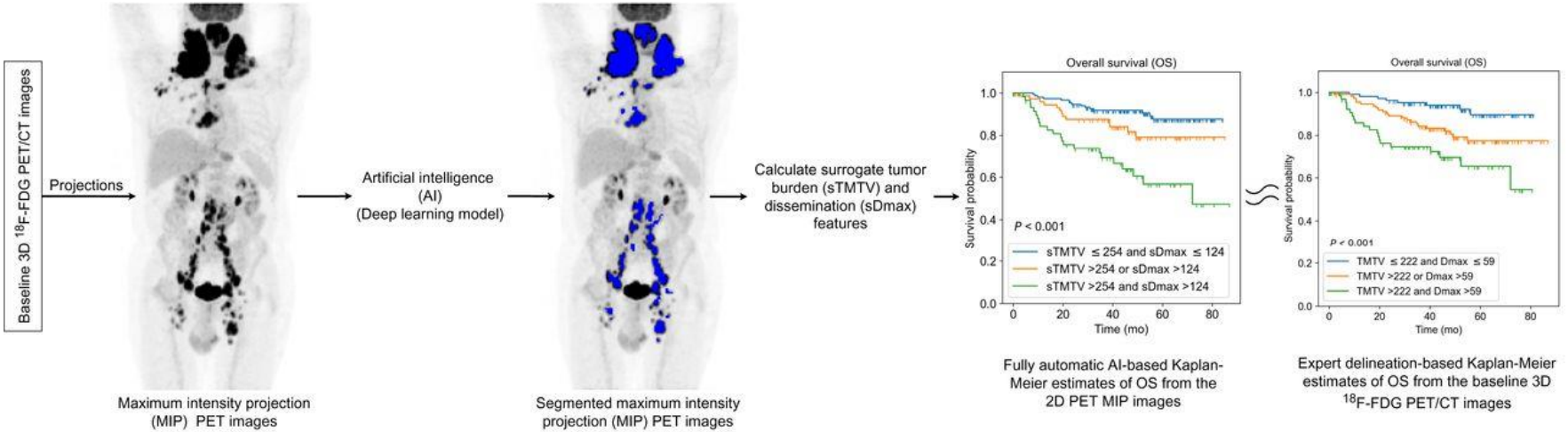
Outcome prediction: AI applied to [^{18}F]FDG PET/CT in lymphoma



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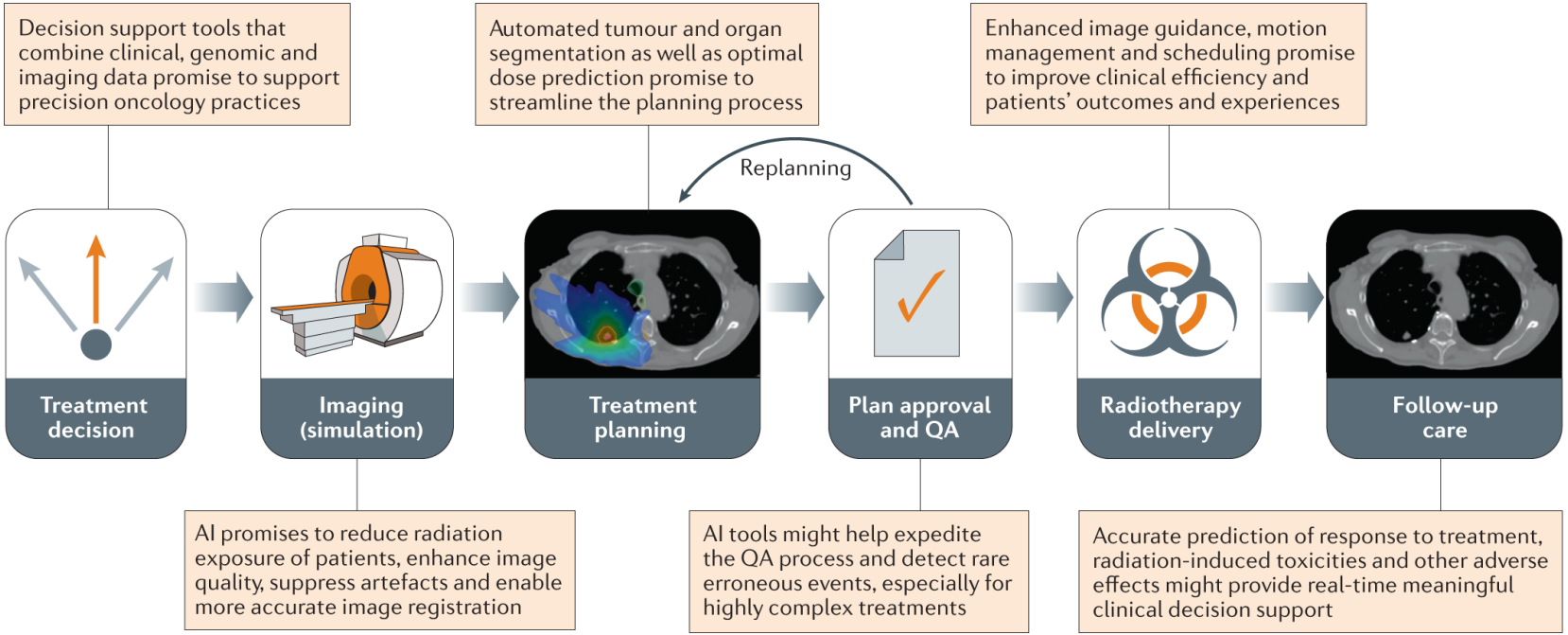
AI applications in radiation oncology



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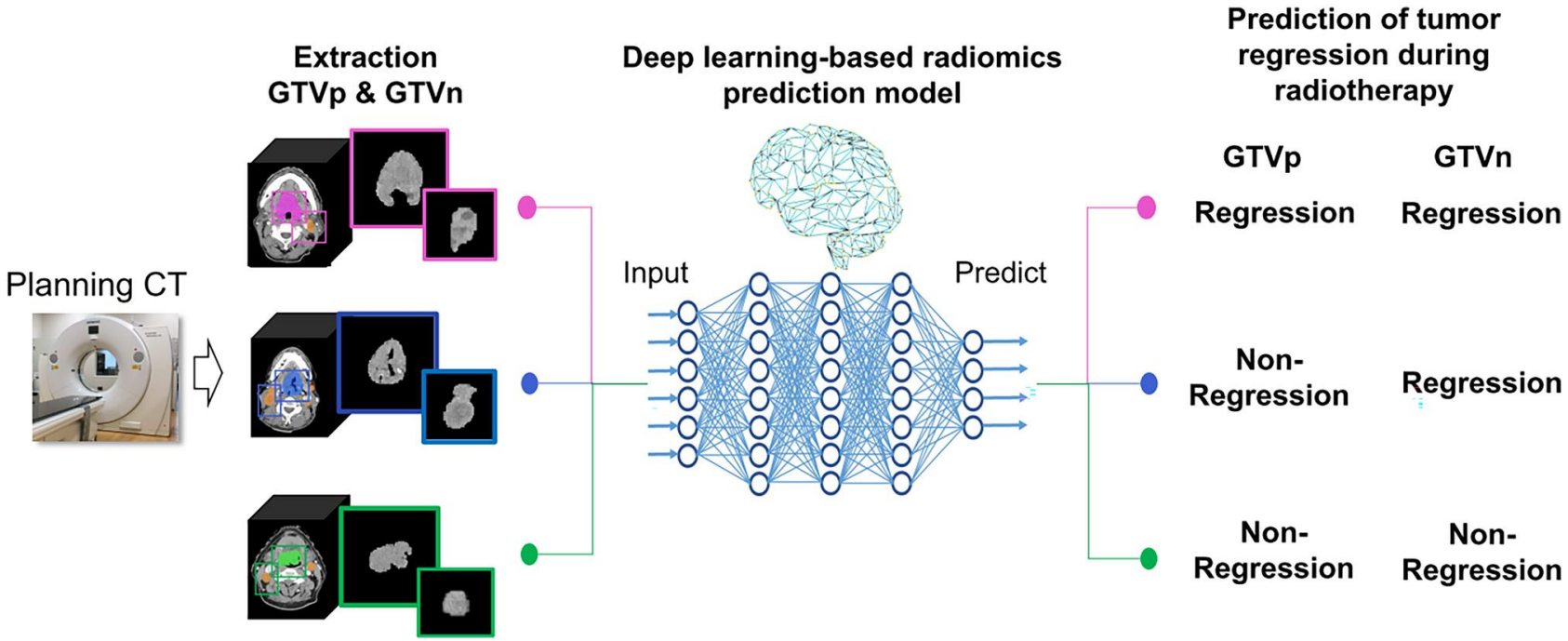
AI applications in radiation oncology: outcome prediction



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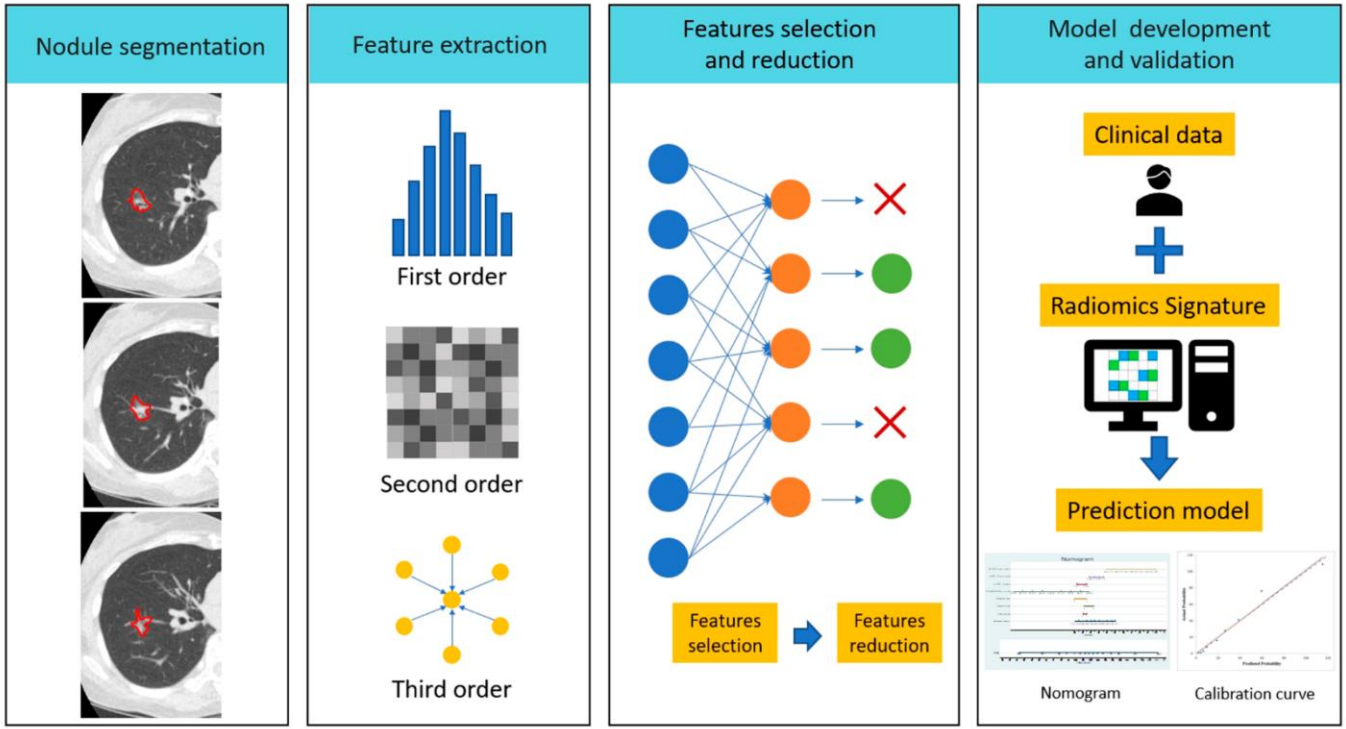
Application of AI in advanced image analysis



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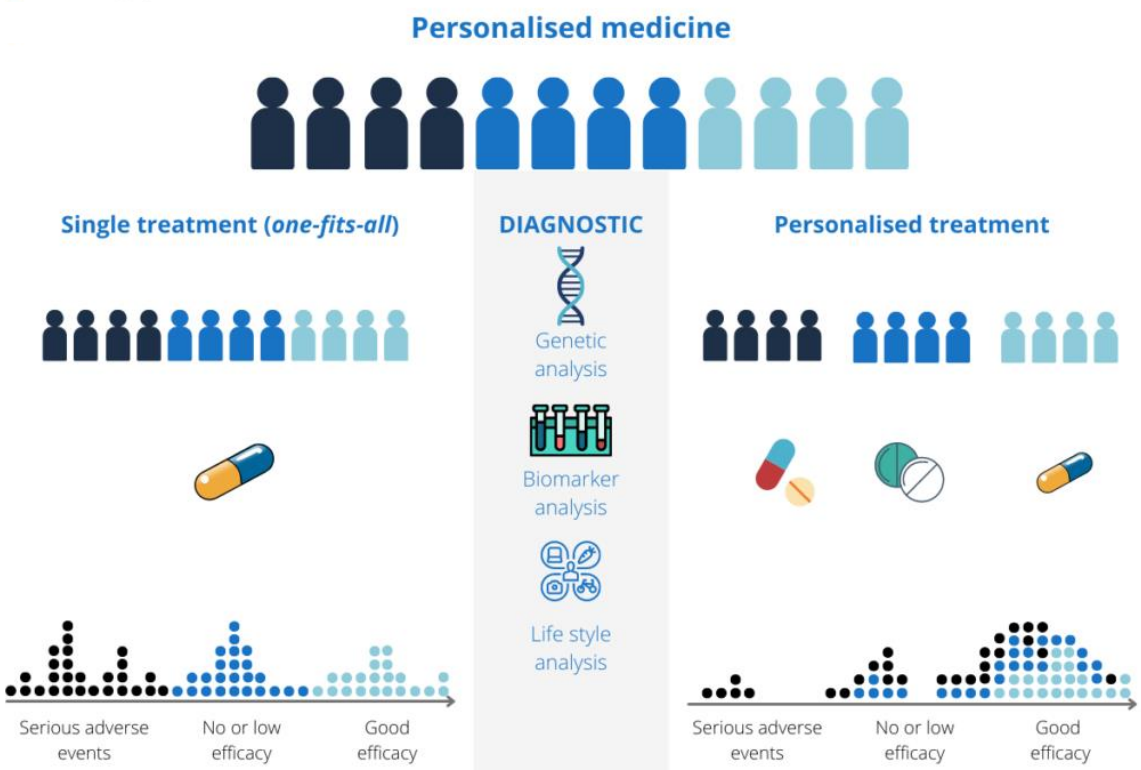
New paradigm shift towards precision medicine



https://www.genosalut.com/en/news/healthy-lifestyle/what-is-personalised-medicine/

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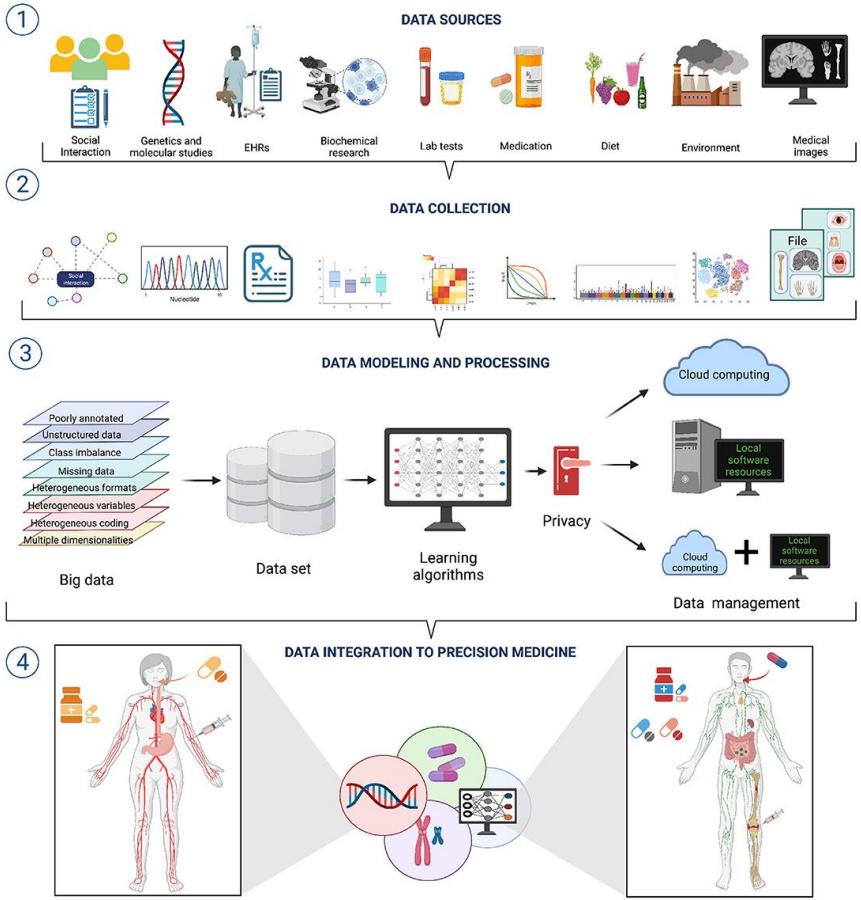

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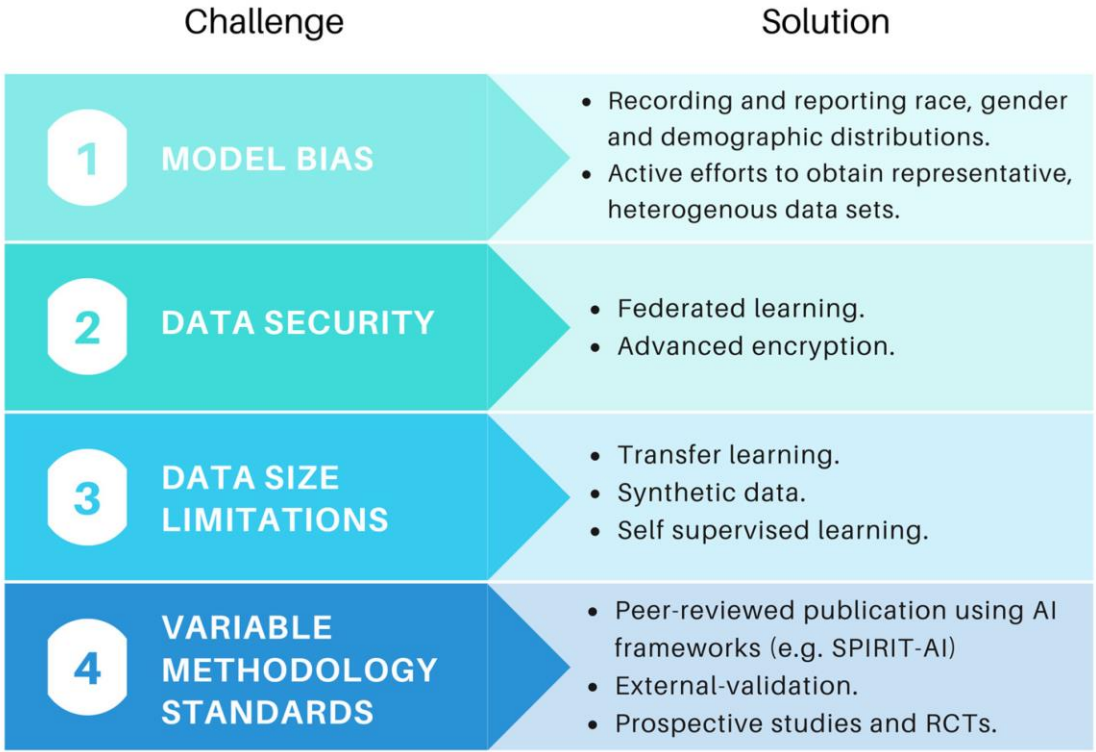
Challenges for implementing AI in clinical routine: all that glitters is not gold



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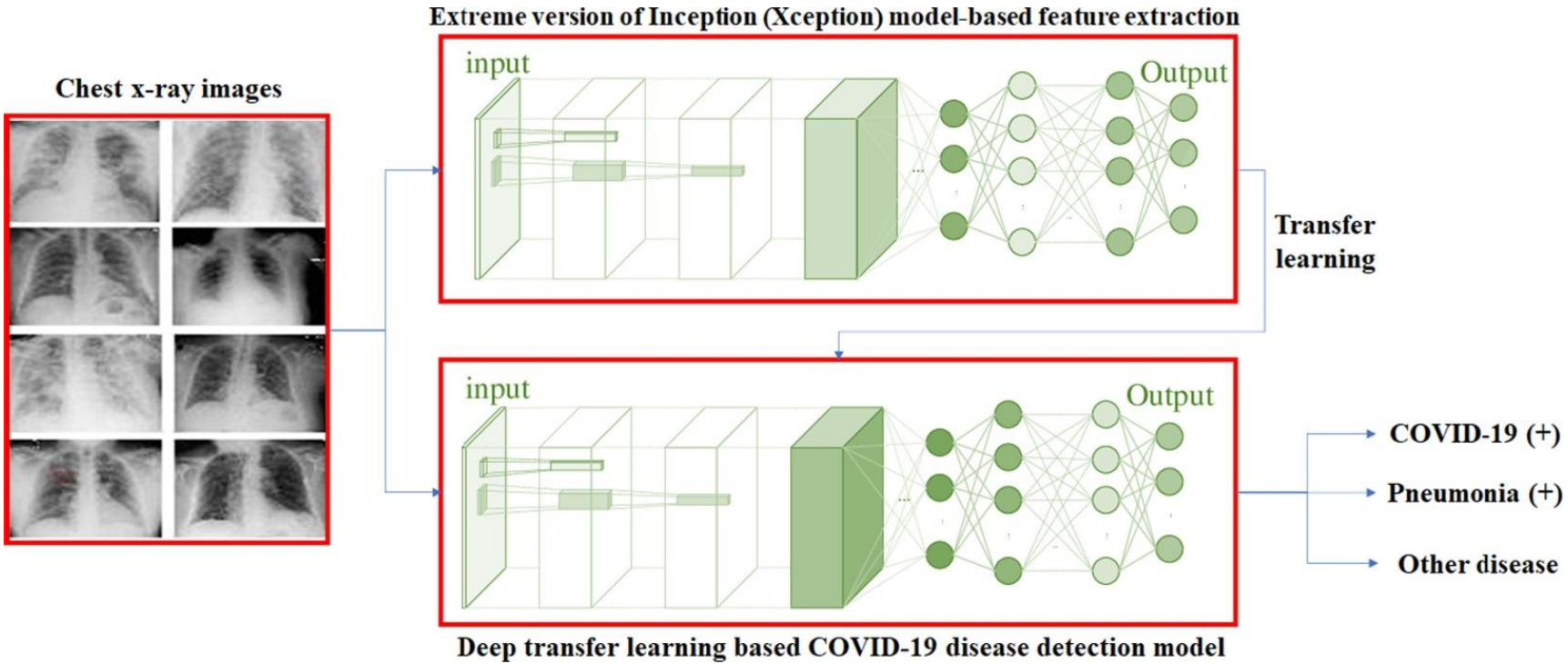
Facing data size limitations: Transfer learning



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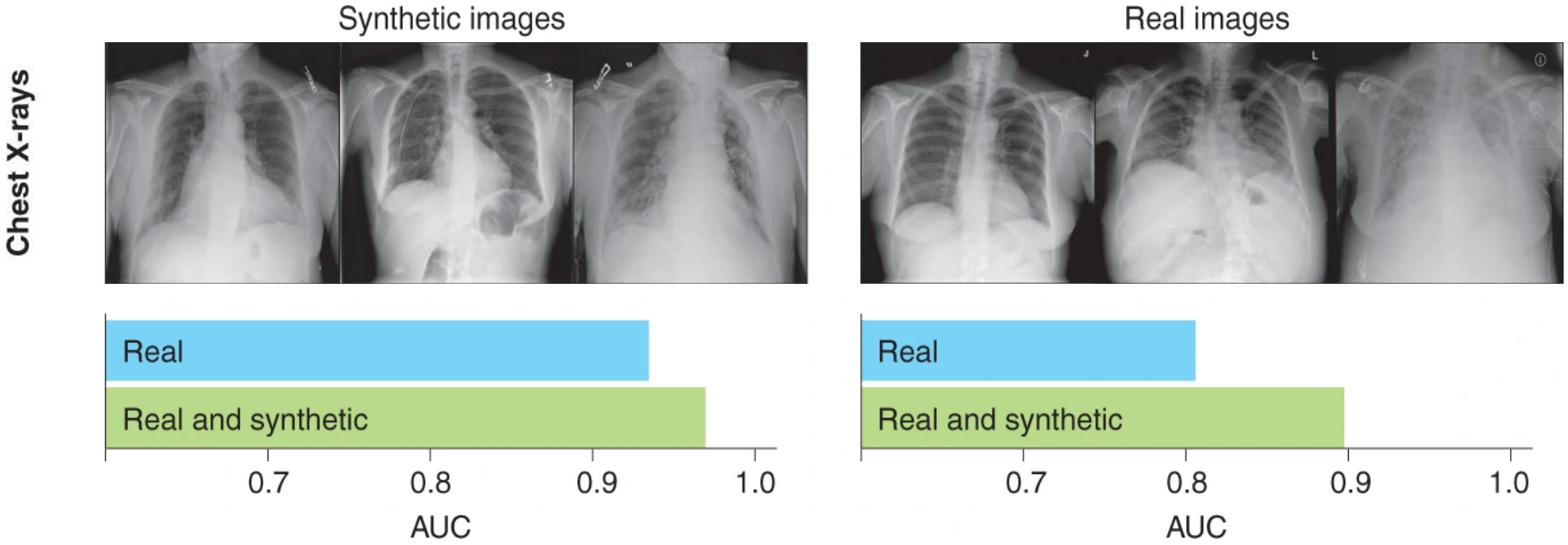
Facing data size limitations: Synthetic images



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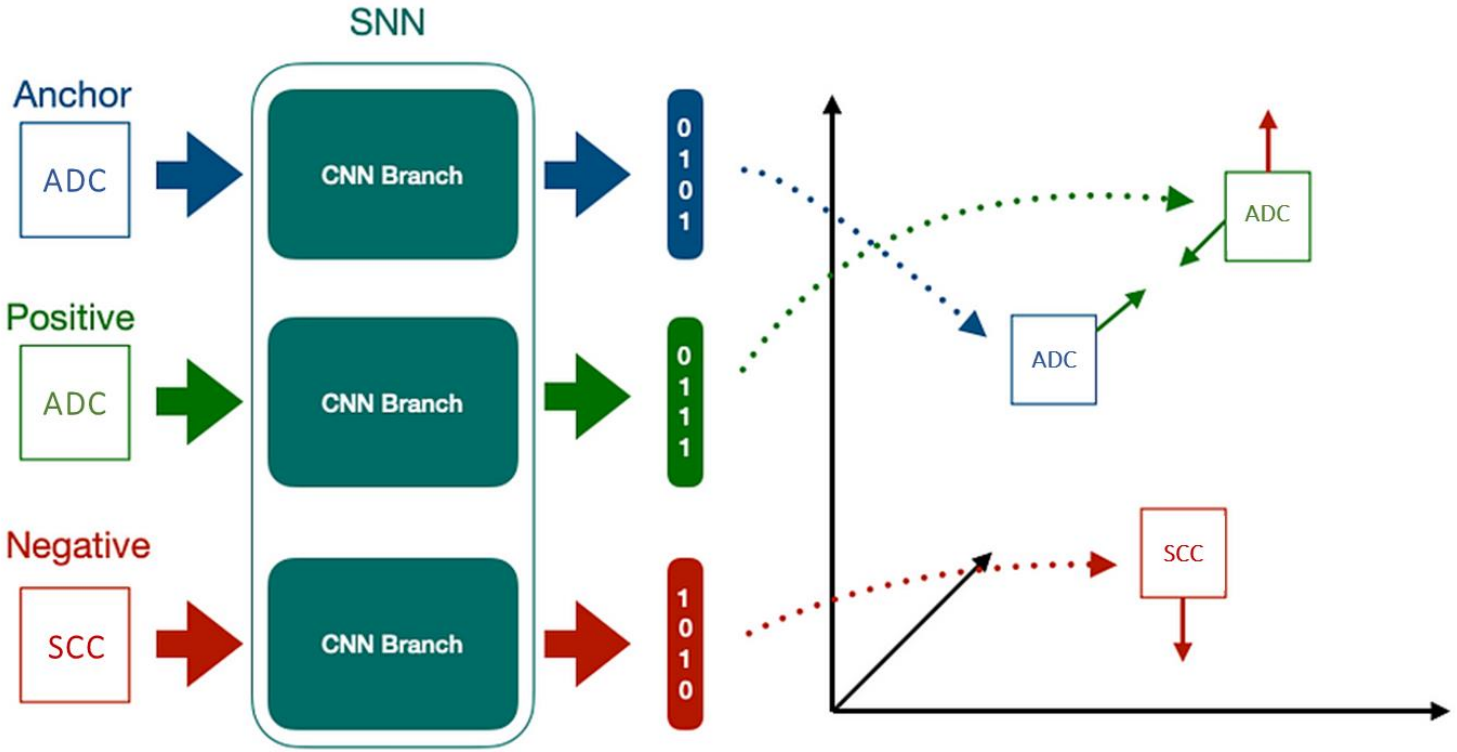
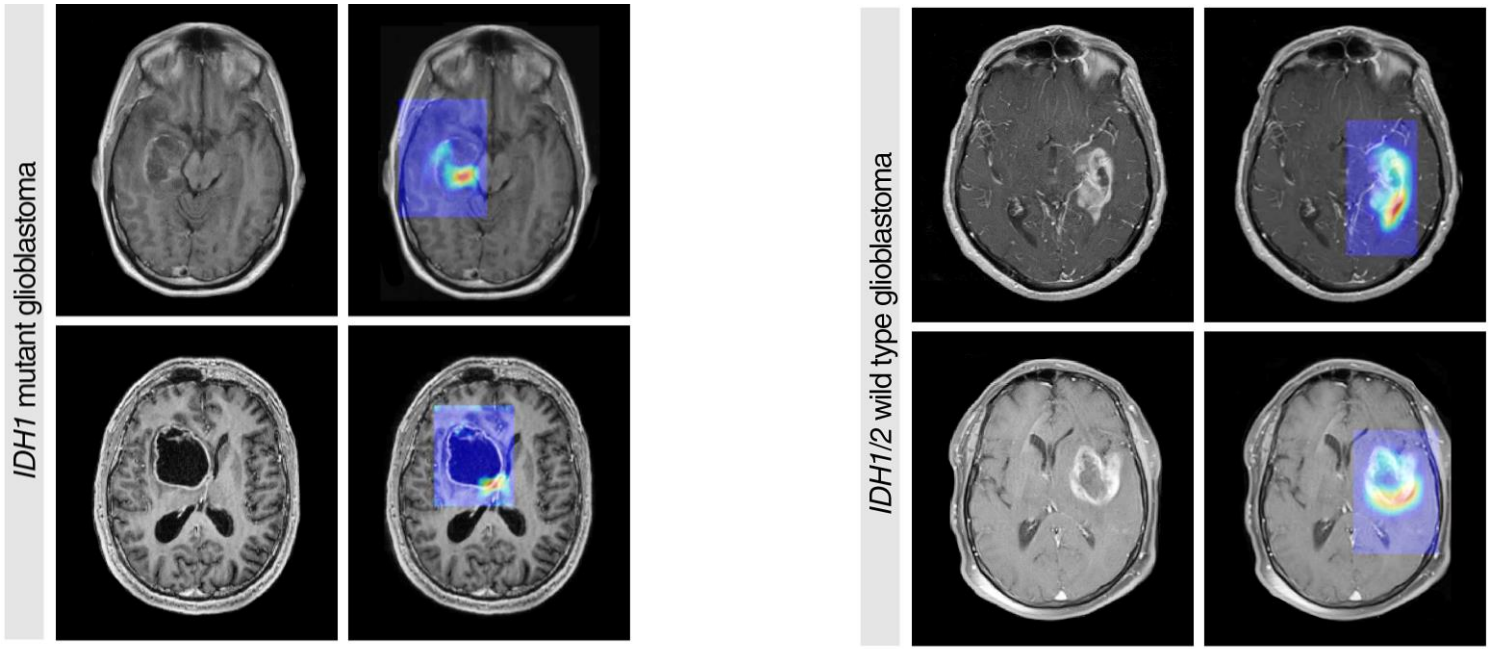
Facing data size limitations: Triplet networks



SigNet: Convolutional Siamese Network for Writer Independent Offline Signature Verification

Explainable AI: the GradCAM



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