AI-AIF: artificial intelligence-based arterial input function correction for quantitative stress perfusion cardiac magnetic resonance

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SCMR
Society for Cardiovascular Magnetic Resonance

EACVI
European Association of Cardiovascular Imaging
European Society of Cardiology

Declaration of Financial Interests or Relationships

Speaker Name: Cian M. Scannell

I have no financial interests or relationships to disclose with regard to the subject matter of this presentation.

Myocardial perfusion quantification

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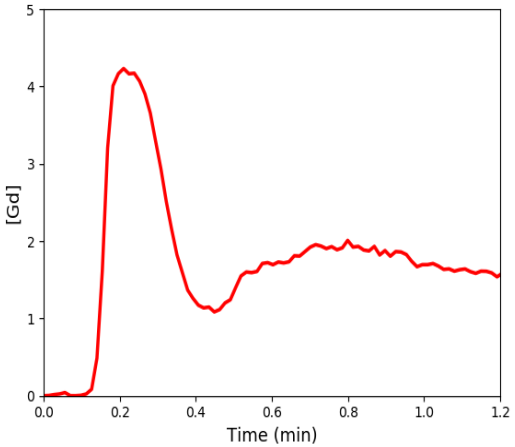
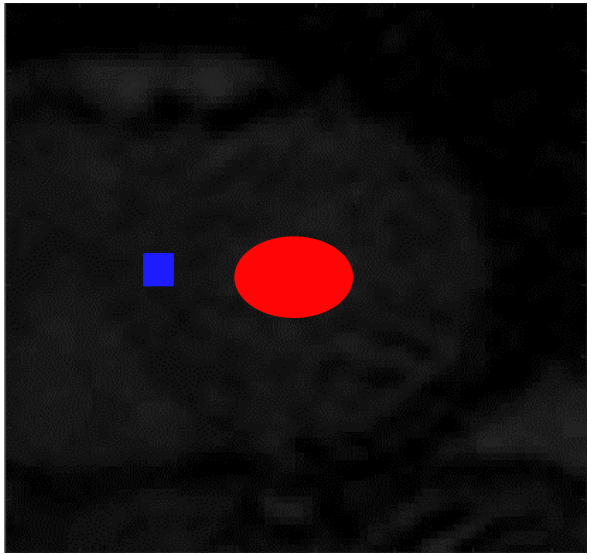
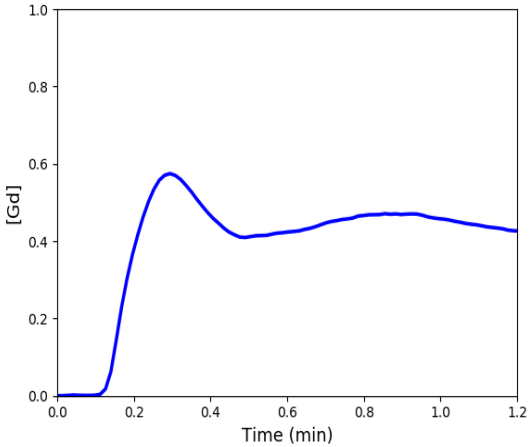
Arterial Input Function

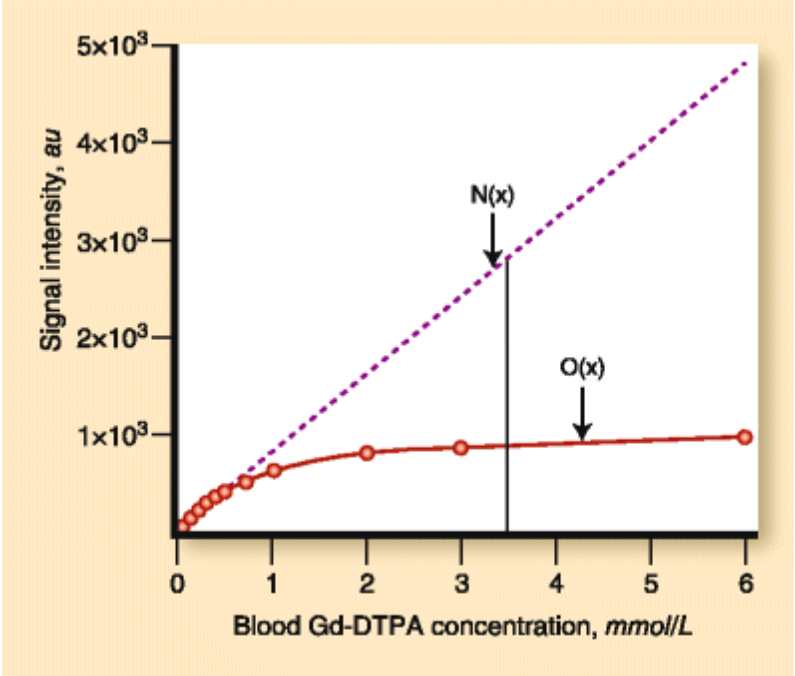




Myocardial Tissue Curve



The problem: signal saturation



Ichihara T et al. MRM 2009

Current solutions

- **Dual-bolus**

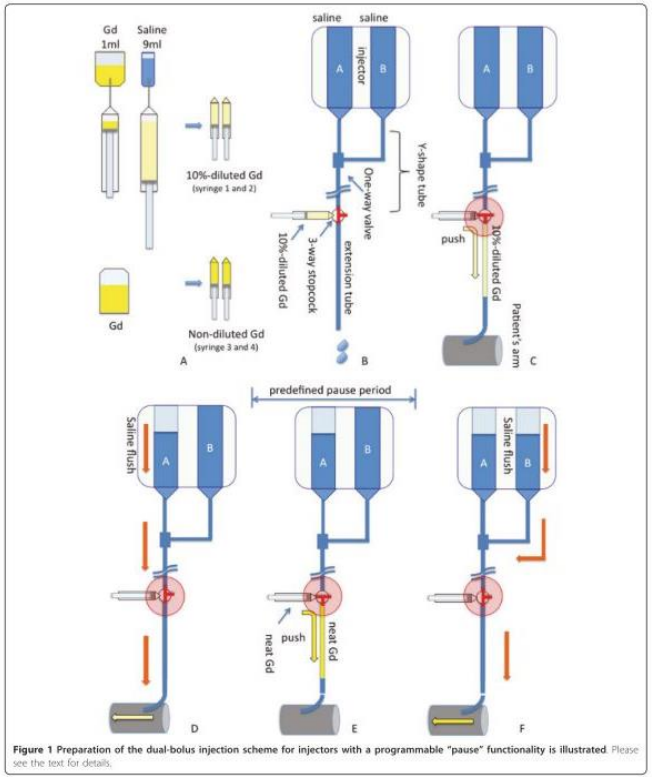
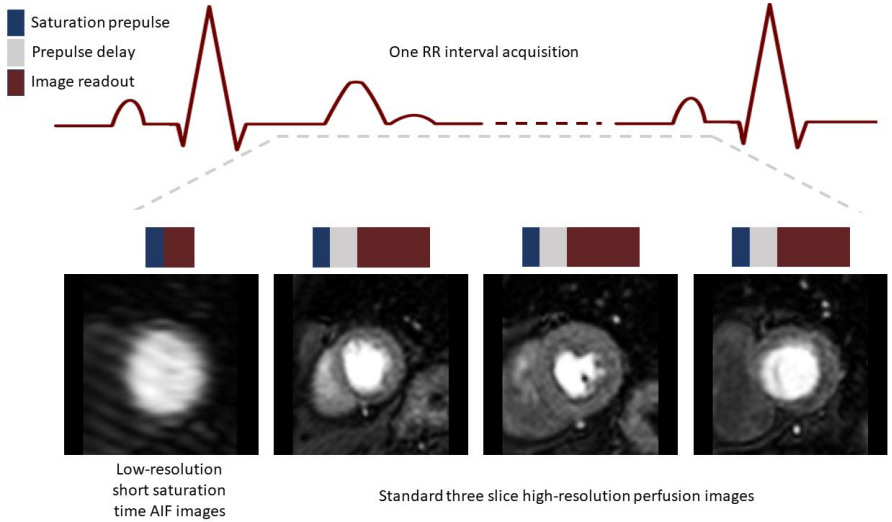
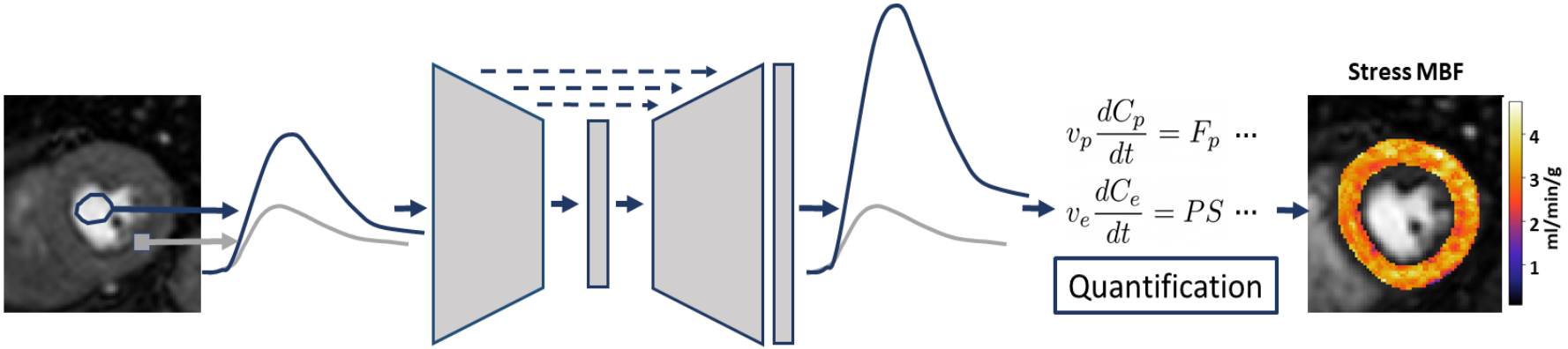


Figure 1 Preparation of the dual-bolus injection scheme for injectors with a programmable "pause" functionality is illustrated. Please see the text for details.

- **Dual-sequence**

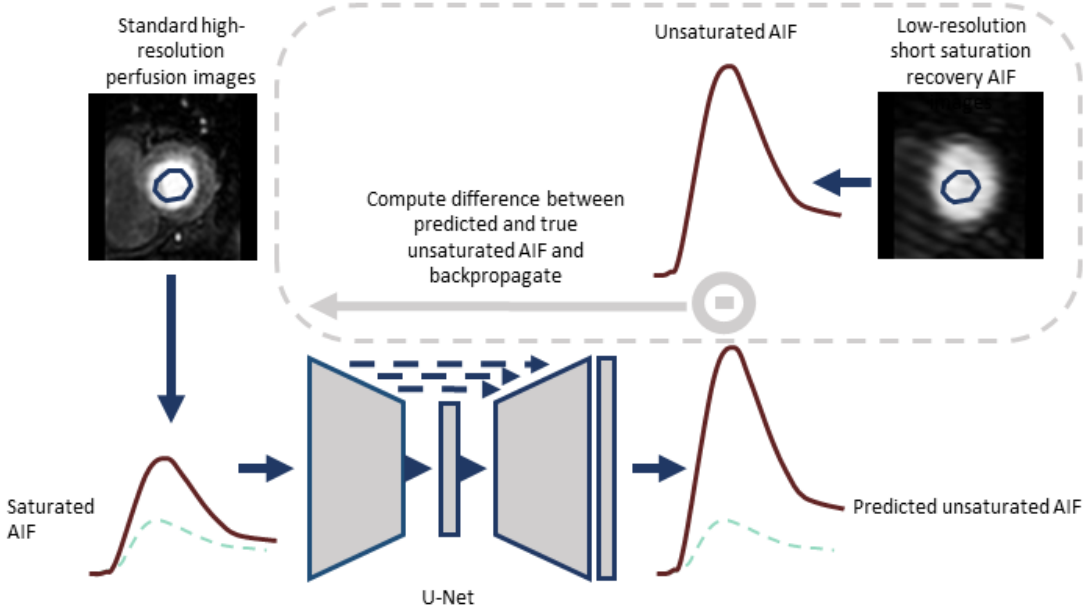


Proposed solution



Model training

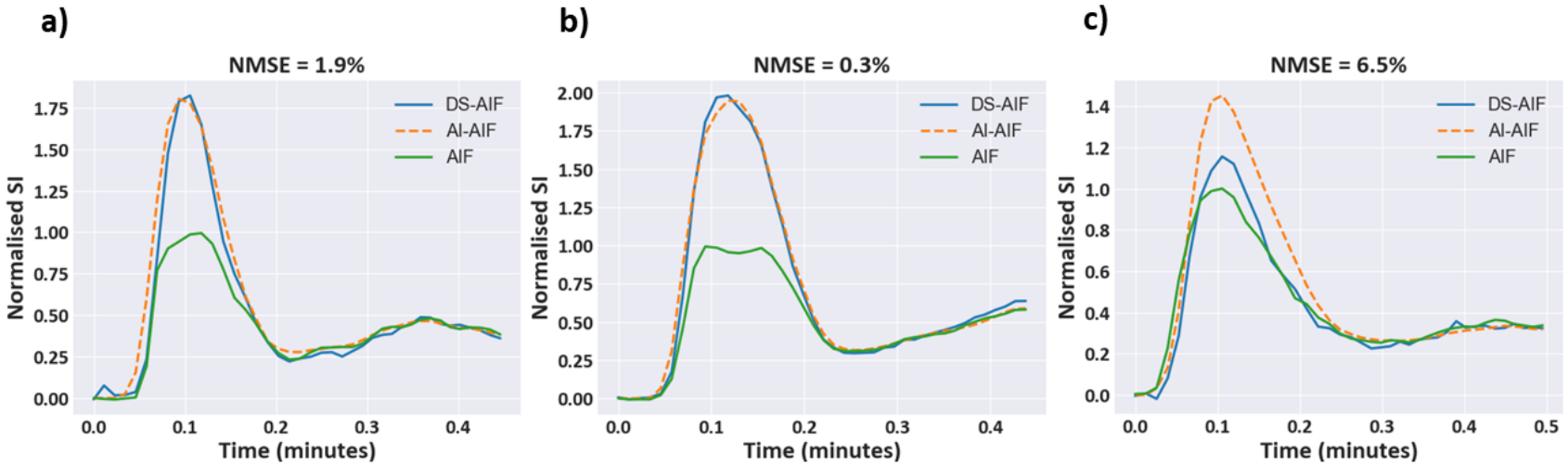
- **Trained on data from 201 patients**



- **Independent test on 28 consecutive patients + 16 external patients**

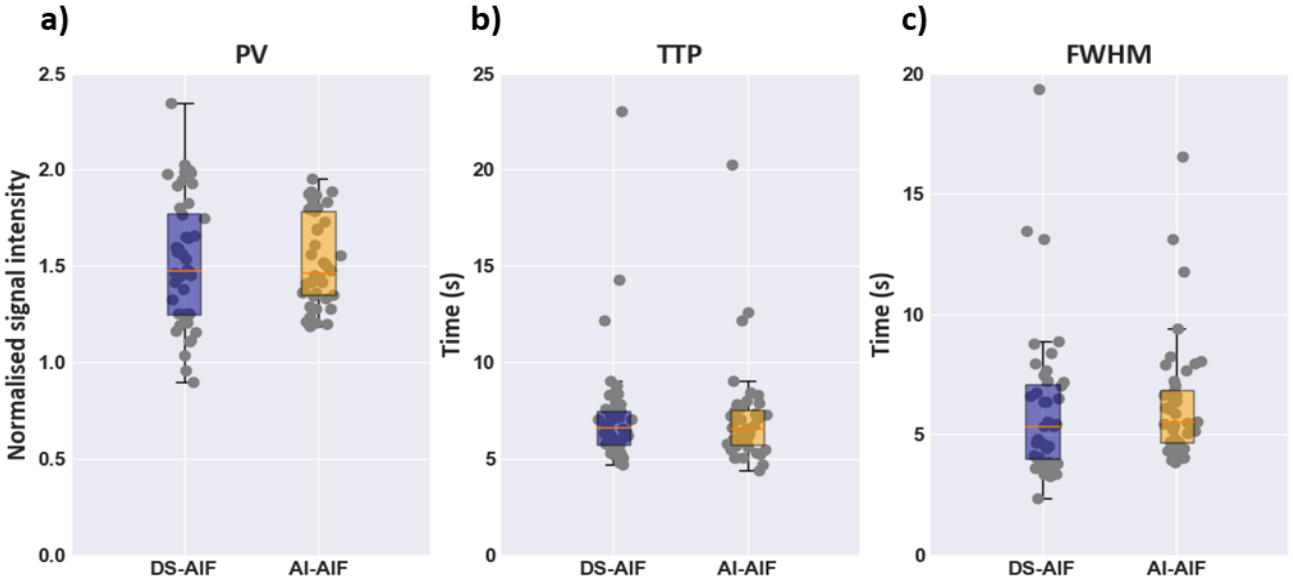
Results

- **Comparison of AI-AIF and dual-sequence curves**



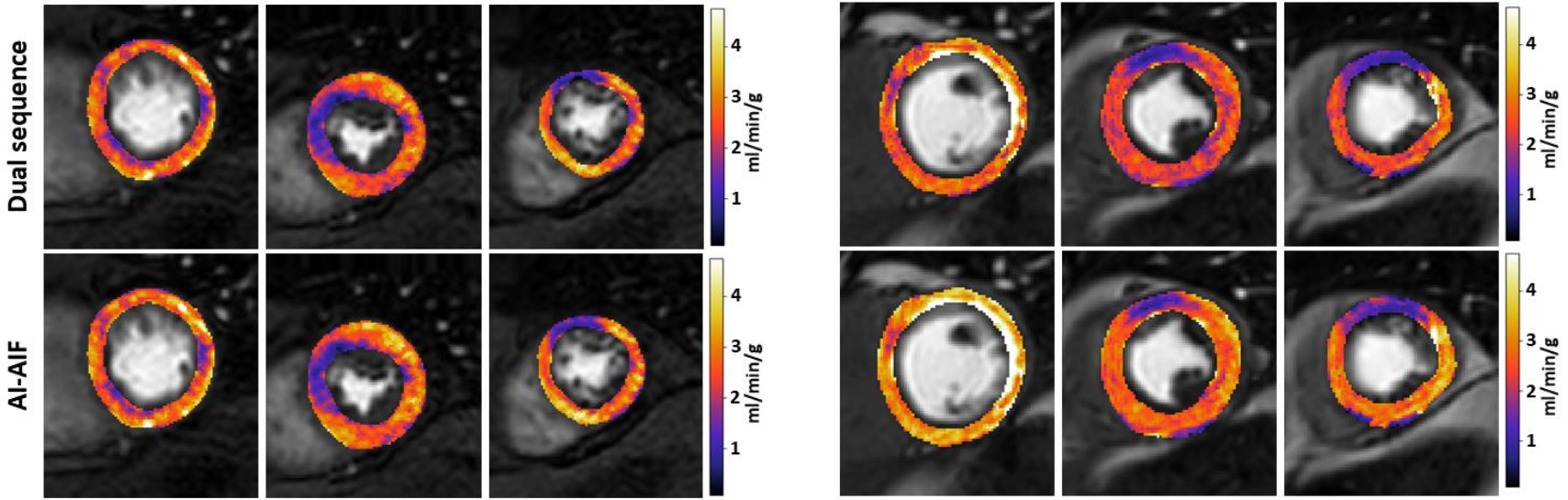
Results

- **Comparison of curve features**



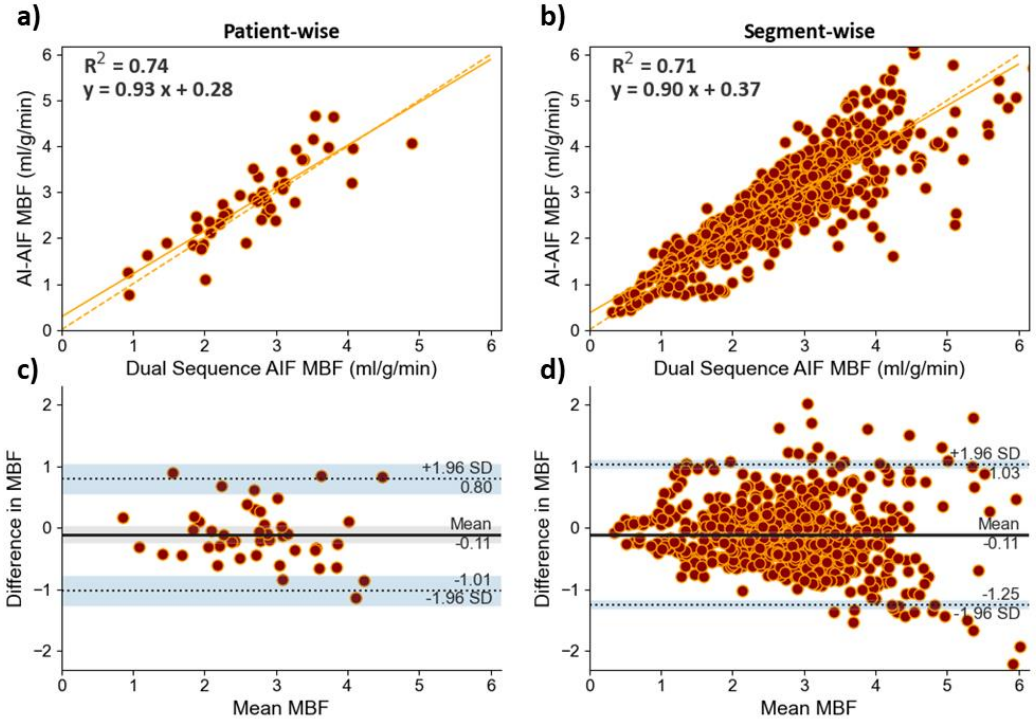
Results

- **Comparison of MBF maps**



Results

- **Comparison of MBF values**



Thank you

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