

Patient Adaptive MRI

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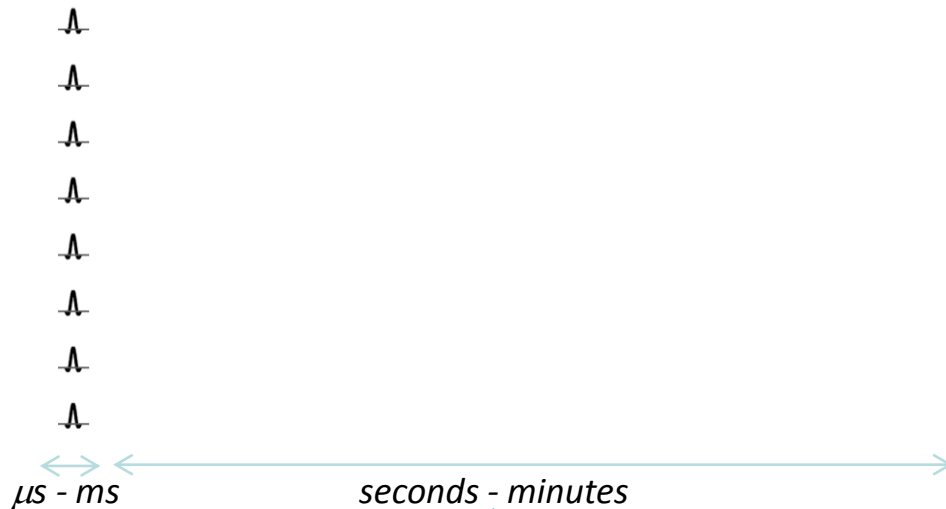
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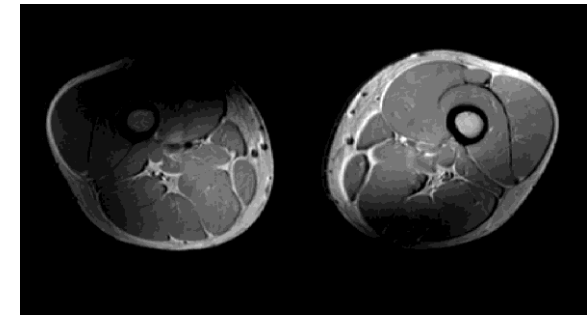
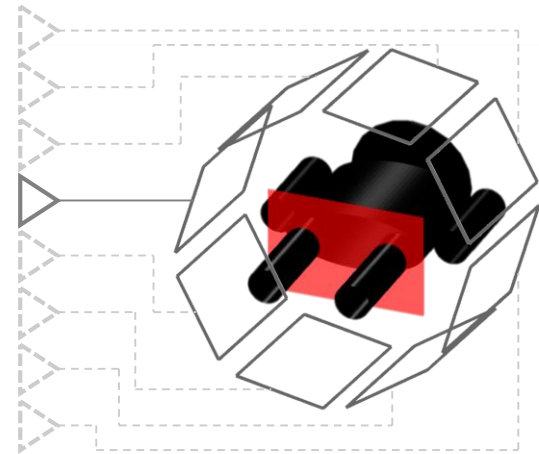
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Conventional MRI

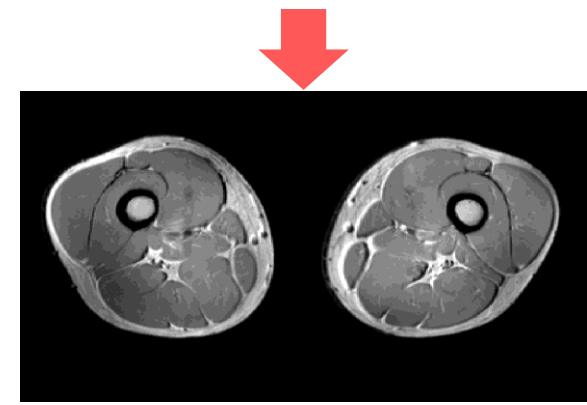
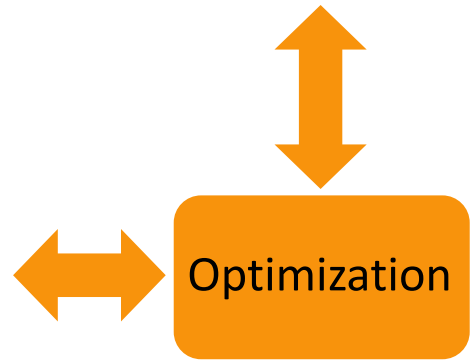
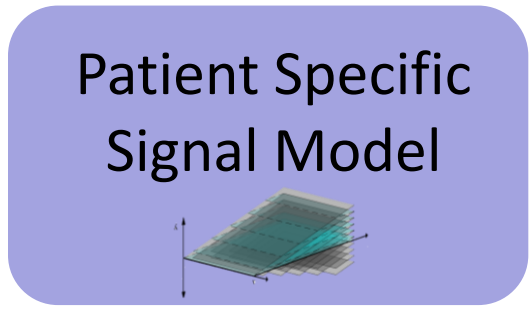
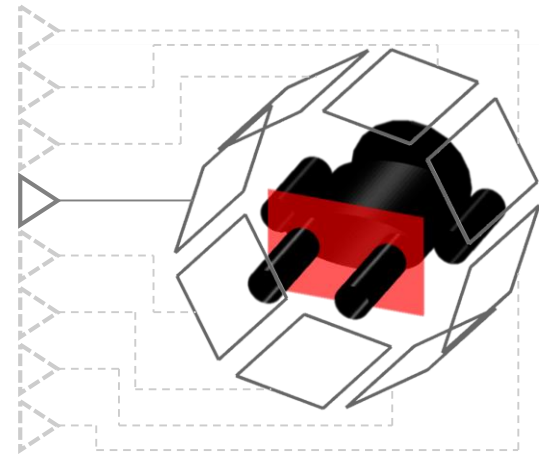
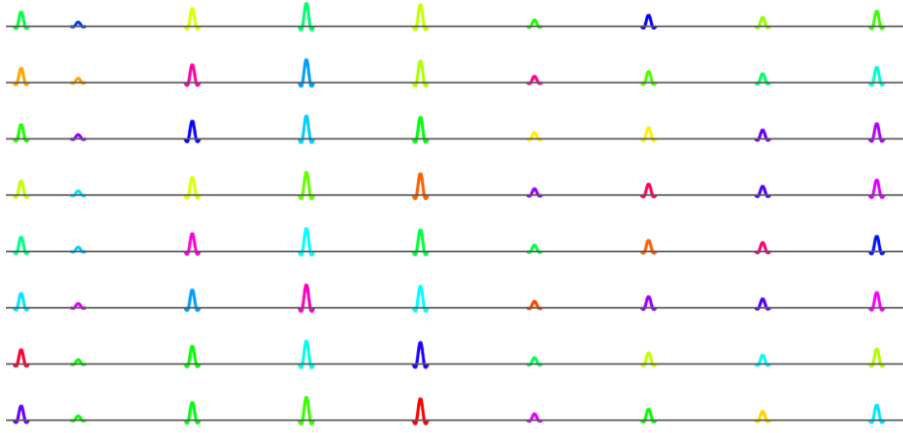


Conventional Pulse Sequence



Signal depends on patient induced field effects. **Can measure these...**

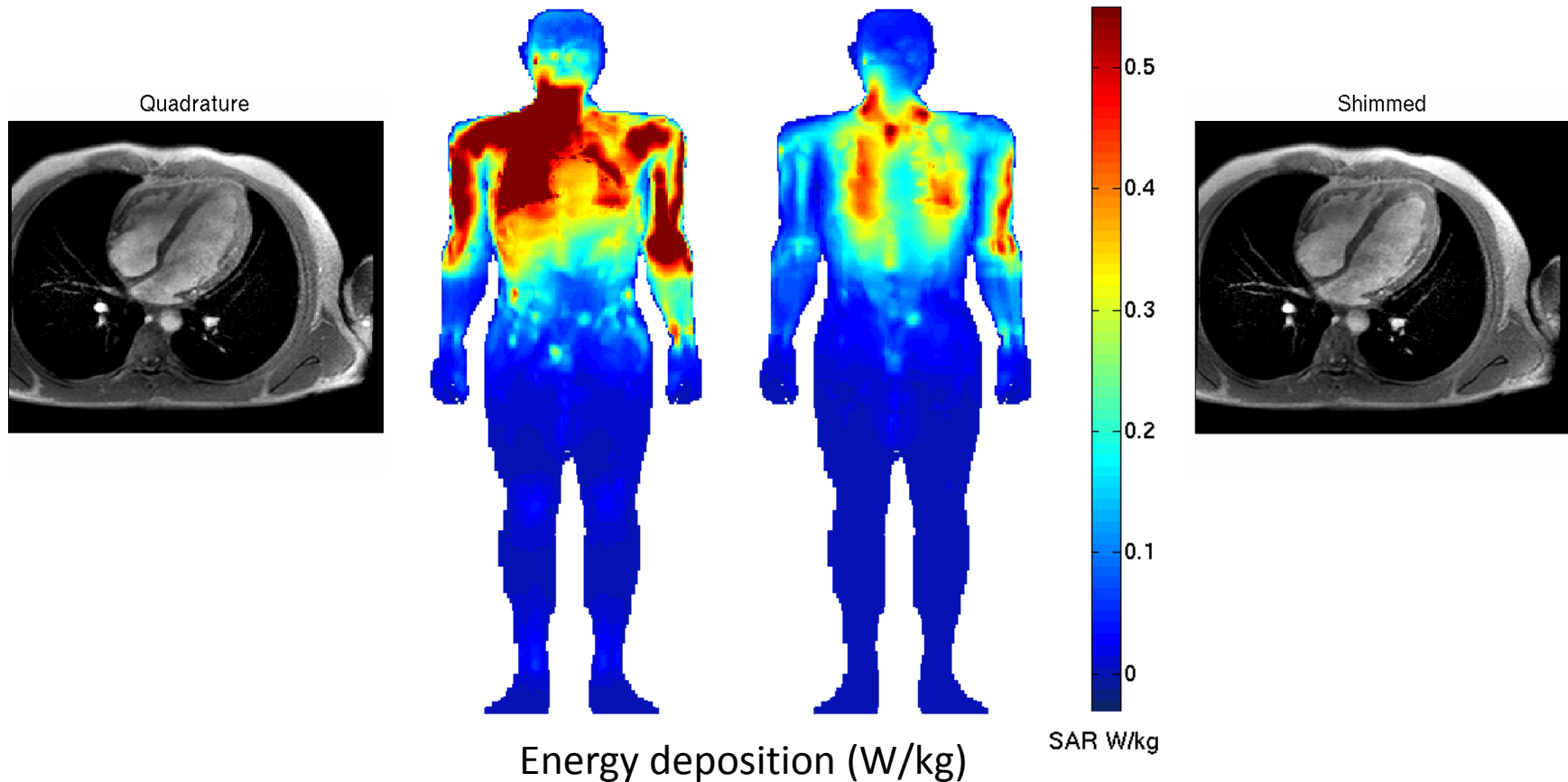
Patient Adaptive MRI



Update the whole sequence to give constant *image quality* for every patient

Enhanced Safety

- RF fields induce heating in patients
- Parallel Transmit MRI allows us to reduce the heating effect



Scanning of patients with implants

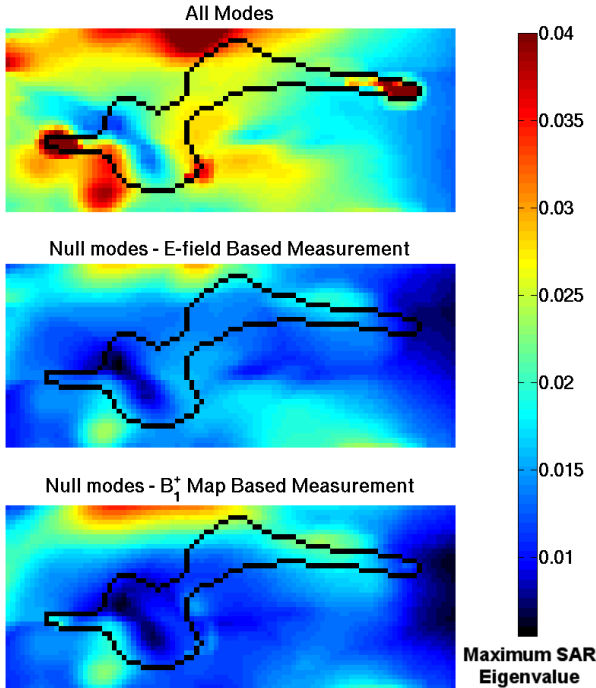
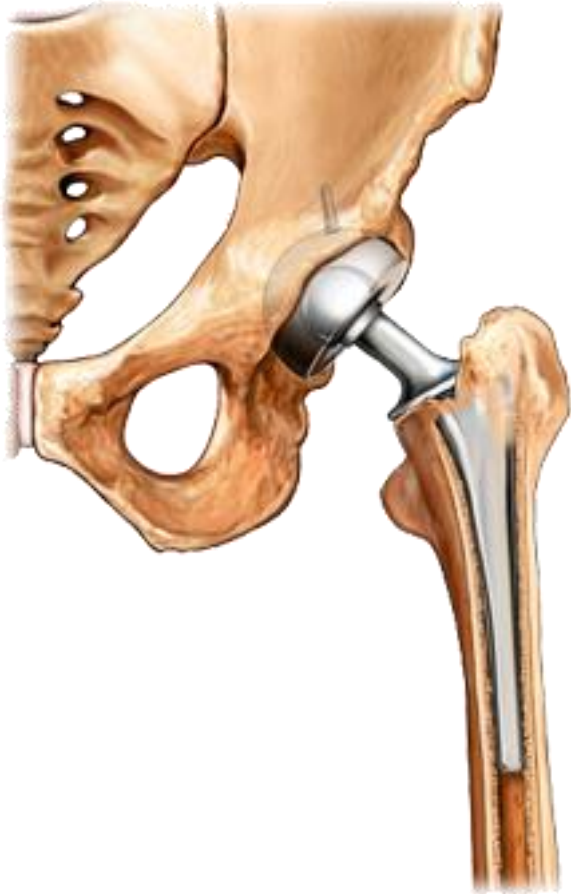


Fig. 1 Maximum eigenvalue of local SAR matrices (maximum intensity projection); all channels (top); only the null modes from the E-field based measurement (centre); and only the null modes from the B₁⁺ map based measurement (bottom).

Summary

- Adapt the scanner to the patient
 - RF pulse and pulse sequence design
 - Reduce deposited energy => faster scanning
 - Safe scanning of currently excluded subjects

- Collaborators
 - UMC Utrecht & ETH Zurich (7T MRI)