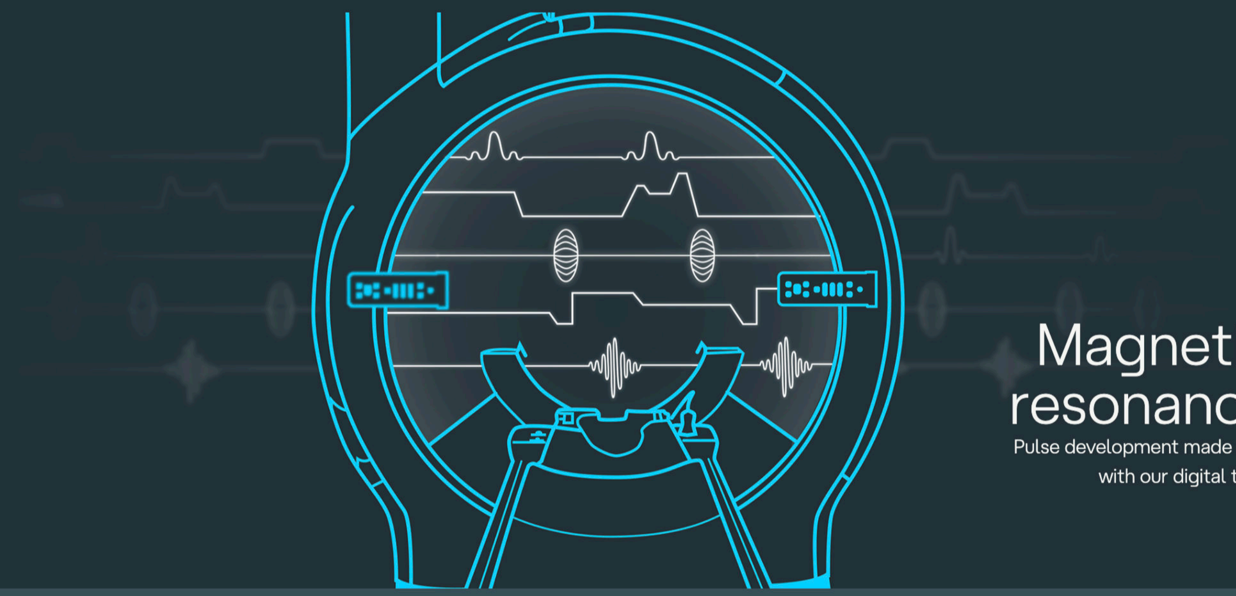


Magnetic resonance

Pulse development made easy with our digital twins

optimal control
enables highly selective and robust pulse sequences

user friendly
interface for effortless operation

digital twin
technology creates an exact replica of your system

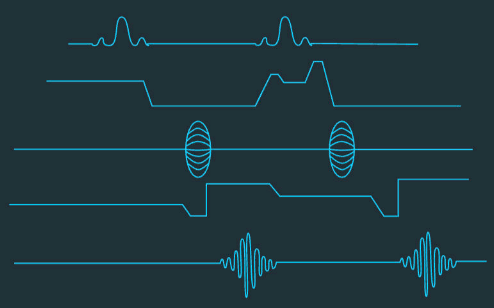
error budget
highlights key sources of error

hardware agnostic
software allows easy integration with your lab

What are the challenges in magnetic resonance?

Magnetic resonance (MR) technologies are powerful for probing physical, chemical, and biological systems. However, they continue to face challenges such as low signal sensitivity, long acquisition times, and high operational costs. All of these hinder widespread and timely use.

Due to the complex physics involved in the spin control of MR systems, standard approaches often fail to produce spectrally and spatially precise pulses that are robust to inhomogeneities and system drift.



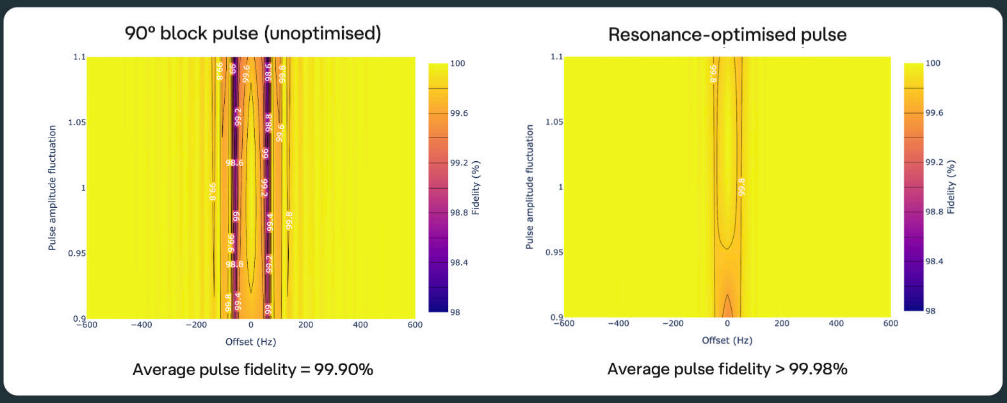
How can Qruise help?

Our advanced modelling tools simplify MR challenges by building a highly accurate digital twin of your system. This enables users to design and test high-fidelity, robust pulse sequences without relying on physical access to a lab or scanner. The result: accelerated development of advanced imaging and spectroscopic protocols.

By generating an error budget, our software identifies key sources of error - such as magnetic field fluctuations or hardware imperfections - and adapts pulses and fields in real-time through closed-loop optimisation. And all of this is seamlessly integrated into a user-friendly interface for easy operation.

High-fidelity digital twins with Resonance

Resonance packages these tools into an end-to-end solution that combines full system modelling, physics-based model learning, and advanced pulse-level optimisation to produce MR pulse sequences that have greater spectral and spatial selectivity and are more robust to fluctuations.

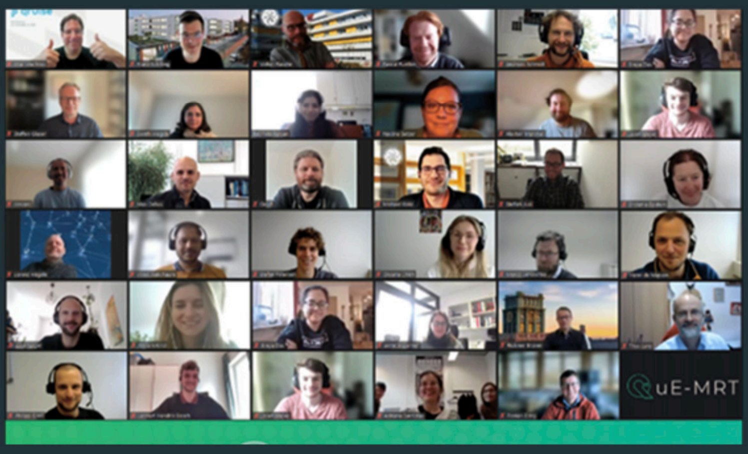


Discover Resonance

QuE-MRT

Qruise is a key member of the QuE-MRT project with the aim of "Revolutionising cancer imaging through quantum technologies".

As part of the project, we've been developing highly selective and robust control pulse sequences that precisely target a single sample slice, minimising spin excitations in other slices for more accurate and efficient imaging.



Find out more

European Innovation Council

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