

Peter Speier, Ph.D.

Peter Speier grew up on the edge of a small village in the German state of Hessen. In 1987, he began studying physics at Heidelberg University, where he earned his degree and later his doctorate with a thesis in solid-state NMR. A job offer from an oilfield service company took him to Houston, Texas, where he spent five years developing the first commercial NMR relaxometer for use during drilling. When he and his wife – who he had met while in Heidelberg – became parents, they decided to move back to Germany. In early 2002, a sequence developer position became available in the interventional group led by Arnulf Oppelt at Siemens MR. This allowed Peter to return to Germany without abandoning (N)MR. Since then, he has been working for Siemens on innovations around interventional and cardiac MRI. His contributions have helped shape many of the company's current solutions, such as interactive scanning, radial imaging, cardiac SMS, exam workflow automation, and cardiac motion management. Peter's two eldest children have left home now, but his youngest daughter continues to make sure working from home doesn't become too boring.



Erlangen, Germany



How did you first come into contact with MR?

I studied physics in Heidelberg and was looking for a topic for my degree thesis. A friend suggested a small NMR group at the Max Planck Institute for Medical Research, where he had just started his thesis. In the final-round interview, Professor Haeberlen only asked two questions: "Do you play soccer?" and "Do you smoke?" And even though I gave the "wrong" answer to one of them, I was accepted into his team for my thesis and have been hooked on MR since. I stayed at the institute to write my Ph.D. thesis. Under my professor's supervision, I learned how to work with and extend a lab-built spectrometer to unravel detailed chemical riddles, discovered the power of gaining a detailed and deep understanding of a topic, and learned not to brush over mistakes that will come back to bite you. These lessons have since paid off manyfold.

What is the most fascinating aspect of MR?

The most fascinating aspect of NMR is its versatility. Here are just a few of the things you can use it for: unraveling protein structures, guiding the search for oil and gas, monitoring how concrete dries, measuring flow in plants. Every application has its own challenges, complex apparatus, and methods. Some of these applications have become indispensable in laboratories, and some have become a commercial success, like clinical MRI.

This commercial success has also turned MRI scanners into very complex, multilayered machines in terms of their hardware and software. Being able to learn about, explore, improve, and use the multitude of components that make up an MRI system is for me the most fascinating aspect of MRI.

What do you find motivating about your job?

The creative development at the start of a project is very motivating: When you come up with something that should improve a customer-visible aspect of MRI, and the idea passes the internal peer review and initial tests. After that, it's often a long and grinding process of refining, debugging, and polishing an idea to turn it into a product. But that's when you get your reward: It's a great feeling when the implementation delivers the improvement, and the customers like it and start using it.

What are the biggest challenges in your job?

During my 20 years in MR at Siemens Healthineers, I have worked on many different projects, often in parallel. The challenges vary with each project phase. For an entertaining glimpse into these, I recommend the old but still relevant book *The Soul of a New Machine* by Tracy Kidder. But the biggest challenge as a developer is managing the build-up of responsibilities over the years: When a development is mature enough, you have to release it into the organization – in other words, you let go of it and hope it will continue to flourish. Then you move on to the next project.

What do you think are the most important developments in MRI and healthcare?

When I started in sequence development, image reconstruction was developed in another department by other developers. These two aspects are now inseparably fused to enable highly accelerated scans, and more and more aspects of the exam process are being connected by software. I was involved in developing the early steps like patient-centric UI parameters, automatic FOV planning, inline postprocessing, and intra-exam information collection and re-use in Dot.

This development work will continue within and across modalities in the future and will include additional auxiliary inputs to simplify and speed up the exam and reading process. Besides improving standardization and quality, this will also reduce access hurdles and free up time for more patient interaction.

If you could do anything you wanted for a month (at work and privately) what would it be?

At work, I would love to be able to spend a whole month on a single fresh project with no interruptions.

Privately, I would probably divide my time between playing guitar (americana and international folk), working on my backlog for repairing mechanical photo cameras, and watching (silent) movies. Or maybe I would continue our Scandinavian camping trip from summer 2021, and visit the Baltic states that we had to skip because of the pandemic.

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