Sylvain Doussin, Ph.D.

After earning an engineering degree in green chemistry in 2003, I went on to complete a doctorate in MR physics at the French Alternative Energies and Atomic Energy Commission (CEA) in Paris-Saclay. My thesis focused on the T2 relaxation properties of encapsulated proteins in reverse micelles in a low-viscosity medium under high pressure. While finishing my thesis in 2007, I joined Siemens Healthineers France as an application specialist. I spent five years covering almost all anatomies and MRI specialties throughout France. In Lyon, I also spent several years organizing and supporting cardiac MR courses for radiologists and cardiologists with Professor Pierre Croisille. At the start of 2012, I moved to Erlangen, Germany, to take up a position as Application Training Manager at CS MR. I was responsible for the training strategy for MAGNETOM Spectra, Essenza, and Biograph mMR. I loved "creating" the first mMR experts – application specialists from MR and MI with cross-disciplinary knowledge. After three years at CS, I moved to R&D as a protocol developer, which required MR physical and clinical knowledge. I would say that I feel like a Toolbox because giving opinion/advice to other teams about many aspects of the scanner during development that the other teams can use for collecting feedback about image quality, works in progress, use cases, and new applications as we try to mimic user behavior at the scanner when developing robust solutions. For six years now, I have mainly been responsible for clinical protocol and application development for Biograph mMR, and all release scanners in various regions and specialties. Radiotherapy has been central to my tasks for the past four years.

Erlangen, Germany

How did you first come into contact with MRI?
Before working with MAGNETOM Avanto and the *syngo* MR VB13 software, during my doctorate I had my first MRI experience when imaging a poor spider we found in the corridor! At that time, I was performing high-resolution nuclear magnetic resonance imaging with a vertical magnet of 21.4T and probes of 0.5 to 1 cm! I put the spider in a tube, and it was my first MR image.

What do you find most fascinating about MRI in RT?
MR is not the leader in this domain: MR serves RT, so I need to understand this new world. I like the interaction between the users and developers because there's so much variety. I get to work with radiation oncologists, physicists, technologists, and pure researchers.

Also, these users are not MR users: They are not addicted to all the great applications we have developed in the last decade, nervertheless they do want the most advanced ones so that they can do things like study radiation response or use MR to adapt their treatment every day if necessary.

How does your work support the use of MRI in RT?
In my role within R&D, I try to be the bridge between pre-development and end users. We have existing solutions we can adapt to MR-in-RT, such as DeepResolve and new workflows, and we need to develop new specific ones. Also, with the relatively small AST THP group, it's easy to discuss a new approach or an issue we need to solve. Our colleagues in Cancer Therapy (CTH) need support for MR topics within a sales or collaboration context. And we appreciate their input – descriptions of hardware and software solutions, and entire radiotherapy workflows including imaging, contouring, dose planning, planning adaption, treatment, follow up, and re-imaging – to help us refine our developments.

What do you find motivating about your job?
All potential solutions or proposals have to be tested in real conditions, more so than for any specialty I have encountered so far. Every tiny detail counts because MR-in-RT is heavily influenced by patient positioning with the mask, by compression, by hardware such as the coil framework, and by software such as synthetic CT or a distortion-correction algorithm. It's important to also understand the other treatment modality or imaging modality (e.g. CT), and its strengths and limitations. Every discussion with colleagues and customers is valuable because it helps to expand my existing knowledge.

I would like to encourage RT users to move to MR now, even if their behavior is quite conservative since they have to guarantee the safety of their patients and deliver the

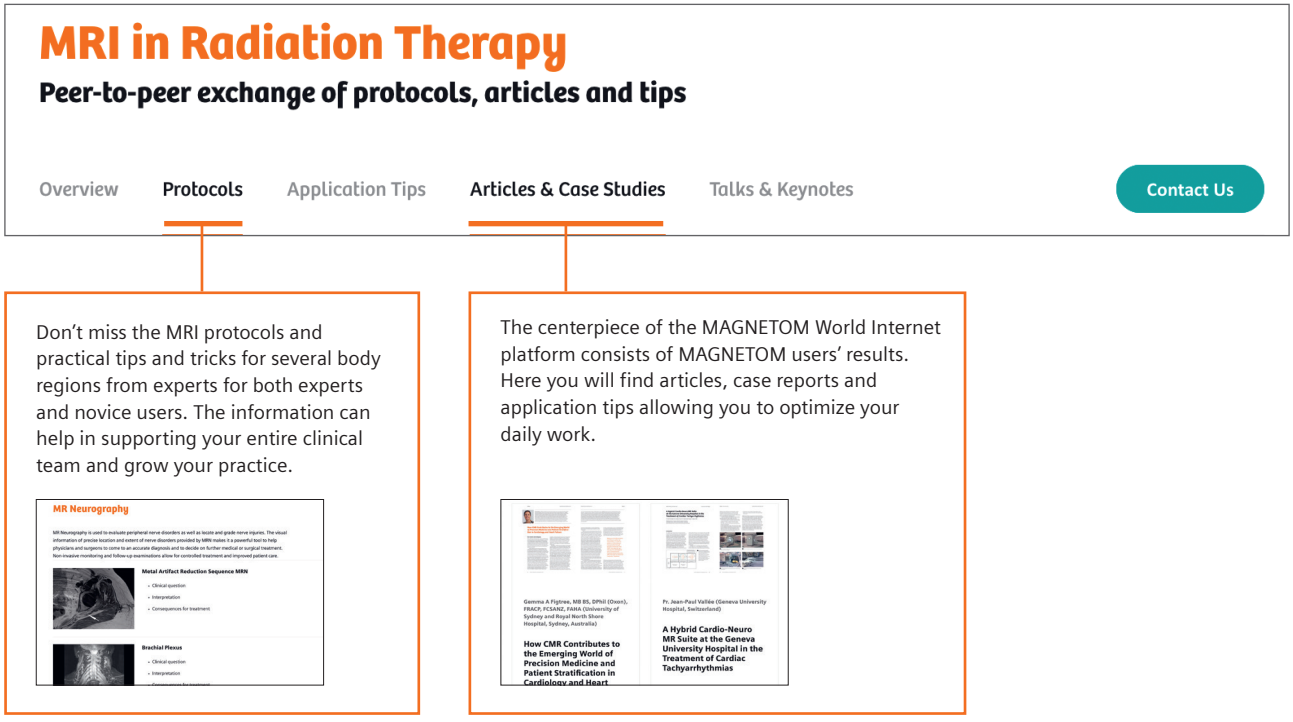
best treatment at all times. On the other hand, RT users have been following the motto of Siemens Healthineers for years – by always striving for the best imaging to provide the best treatment for their patients. Simple! I love the feeling that my work has a value that I can observe and assess.

What would you do if you could spend a month doing whatever you wanted?
I would find it interesting to step out of the R&D rhythm and visit our end users who want to test our solution and set up clinical studies together. Patients could also benefit a lot from these types of meetings in the context of COVID-19.

I could imagine combining this with a one-month road trip around the Mediterranean, with a stop in France of course! Or in South America, with just a backpack and a mobile phone to arrange the travel day by day. It would open up so many opportunities to meet new people, experience different cultures, and see fascinating places – and I'd spend some time playing soccer, doing yoga, and just relaxing.

Of course, I could also take a month off work entirely for my trip! I'd love to return to my home country as a tourist and see some of the many villages, landscapes, and monuments I've never visited. A day, a place, and a culinary discovery: this triptych could be my plan B for a month.

Siemens Healthineers' global MRI community offers peer-to-peer support and information. Radiation Oncologists, Radiologists, Medical Physicists, Technologists and Cardiologists have all contributed with publications, presentations, training documents, videos, case studies and more – all freely available to you via this unique network.



Put the advantages of the MAGNETOM World to work for you!

www.siemens-healthineers.com/magnetom-world-rt