

Meet Siemens Healthineers

Varian is part of Siemens Healthineers. Together, we are better positioned to push the boundaries of innovation and shape the future of healthcare and cancer care. The people working for Varian, a Siemens Healthineers Company, are committed to the company they work for, and are passionate about the opportunities ahead to accelerate our global patient impact and transform oncology. In this section we introduce you to colleagues from all over the world – people who put their hearts into what they do.

David Schaal, Ph.D.

Dave Schaal graduated with a Ph.D. in experimental analysis of behavior from the University of Florida in 1988. He completed a postdoctoral fellowship in neurobehavioral pharmacology at the University of Minnesota before accepting a position in the Department of Psychology at West Virginia University in 1991. His lab conducted research on the effects of psychotropic drugs on animals' sense of passing time. He joined the Department of Neurosurgery at Stanford in 2002, collaborating on research on neuroprotection from stroke. There he worked with John Adler, inventor of the CyberKnife Robotic Radiosurgery System, which eventually led to his career in the radiation oncology industry. After years at Accuray Incorporated and ViewRay Incorporated, Dave happily joined the Medical Affairs team at Varian Medical Systems, where he heads the Strategic Publications Group, and learns something new every day.



Palo Alto, CA, USA



How did you first come into contact with MRI?

I have two experiences with MRI, despite not technically working in the field. At Stanford, CA, USA, I worked with researchers who labeled neural stem cells with superparamagnetic iron oxide nanoparticles, then implanted them near damage caused by experimentally induced cortical stroke in rats. A 7T scanner allowed detection of the cells as they migrated toward the stroke damage – it was fascinating. More recently I worked for ViewRay, and learned about the potential benefits of guiding radiotherapy with MRI. When I joined Varian I was happy to focus at least some of my efforts on the Ethos device, which is a clear competitor with ViewRay despite not having an onboard MRI.

What do you find most motivating about your job?

I loved academia – research and teaching and service to colleagues – and unless I'd found a way to satisfy those passions in an industry setting, I would not have considered leaving that life. But I have been lucky to be in a position that requires constant reading, learning, teaching, and service to colleagues, for each company I worked for. Being able to continue and share my love of science is extremely motivating for me. I'm grateful to have found my passions in a business that allows international

travel and friendships and requires me to pay attention to the leading edge of the fascinating and constantly changing field of oncology.

What do you think are the most important developments in radiation oncology?

In the last generation technological developments have allowed the creation of radiation treatments delivered extremely precisely to a 3D volume that conforms closely to the tumor and minimizes radiation exposure to nearby normal tissues. This required the development of high-quality 3D CT imaging (often supplemented by MR imaging), computer-aided creation of 3D volumetric treatment plans based on that 3D imaging, delivery technology (such as the multi-leaf collimator, or MLC) to deliver 3D plans, software and hardware to further refine those plans (i.e., intensity-modulated radiotherapy, or IMRT), and on-table imaging and dose tracking technology to assure that these exquisitely created plans are accurately delivered. Delivery improvements such as volumetric modulated arc therapy (VMAT), non-coplanar delivery, and real-time tracking of the target location improved things further. We are now at the point of being able to adapt plans based on pre-session on-table 3D imaging, further reducing the impact of day-to-day anatomical variation on treatment

quality. Soon, I'm sure, it will be routine to also adapt based on biological information about the target. To all this we can add patient- and tumor-specific genomic information, targeted systemic and immunotherapies, a proliferation of minimally invasive local tumor treatments in addition to precision radiotherapy, and lots of promising future developments, and we're in a position to give primary and metastatic cancer patients an excellent chance of cure and extended high-quality life. It's exciting to be part of these consequential developments.

If you could do whatever you wanted for a month, what would you do?

I'd love to take my wife, dog, and musical instruments to a cottage on the Atlantic coast of Nova Scotia, Canada. We'd go to sleep to the sound of the surf, we'd play and create music, we'd take long walks with the dog, we'd read books. We have family in Nova Scotia that we could visit. There's also a wild animal rescue facility nearby where we could volunteer. And we'd spend some time thinking about what awaits us when our work life is over.

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