Arjen Witteveen, BIS graduate

Arjen Witteveen did his bachelor in Computer Science at Utrecht University and continued his education with the master Biomedical Image Sciences in 2010. Currently he works on his research project in Toronto, Canada.

Why did you choose the Master's programme Biomedical Image Sciences? "After my bachelor, I sought to move towards a more applied programme. At the same time, I was hoping to develop my knowledge in a broader sense, beyond just computer science. Working in the medical field was an interesting and adventurous choice for me, coming from a relatively theoretical bachelor."

What do you like about Biomedical Image Sciences? Arjen finds the interdisciplinary character of the programme appealing. "The combination of computer science, physics, maths and engineering makes the medical imaging field very multidisciplinary, so there is plenty of room to develop yourself in a direction that suits your background and interests. It is inspiring to witness the cutting edge of medical technology resulting from the synergy of all these different disciplines."

What did you specialize in? The technique of image registration is a central theme in Arjen's thesis and research project. "Registration is needed to automatically compare and combine images, which is crucial for things like treatment response monitoring and group studies. My thesis focused on brain scans, while my research project revolves around abdominal contrast-enhanced MRI data."

Tip: "Consider going abroad for a research project. There are tons of opportunities out there and the professional as well as personal experiences you’ll gain, are invaluable!"
(June 2012)

Miekee Lam, BIS graduate

Miekee Lam, former master student Biomedical Image Sciences, currently works as a PhD candidate at the Image Sciences Institute in the Imaging Division of UMC Utrecht. Her field of interest is MR physics, with a focus on MR thermometry.
Why did you choose Biomedical Image Sciences?
“Although I appreciated the fundamental character of my Physics bachelor, I missed the direct connection to society. In search of multidisciplinary master courses I noticed the Biomedical Image Sciences MSc programme, which deals with exact science in a medical environment.”

Was the multidisciplinary character as you expected?
Miekee was surprised how little she had to deviate from her initial field of interest. At first she had to learn more about all the different aspects of medical imaging. “The BIS courses gave me a good foundation for my research project, which I performed in Japan. “I contributed to the development of a new MRI method to measure temperature in tissue by investigating the influence on the MR signal of a number of temperature dependent parameters.”

Did your master prepare you well for your current research?
“It certainly did. For research in MR thermometry, knowledge of MR physics is essential. The processing and analysis of data requires image processing and programming skills. This multidisciplinary Master’s programme covers a broad range of topics, which gives me the opportunity to develop my abilities in all the different aspects of the medical imaging field.”
(June 2012)

**Vincent Boer, BIS graduate**

Vincent Boer studied physics before starting his Master's programme in Biomedical Image Sciences. He is now a PhD candidate conducting doctoral research on the potential applications of the brand new 7-Tesla MRI scanner, which only recently arrived in Utrecht. “Every day I work to better understand the physical properties of this new system.”

Vincent is working on methods to apply the higher resolutions possible with the 7-Tesla MRI scanner. "We can generate images of incredibly small blood vessels. We are also searching for tiny structures and new contrasts in the brain. In the future, we will hopefully be better able to detect disease and to understand how the brain works."

As part of his Master's programme, Vincent spent nine months at the University of Bordeaux. “That was a really good time. Not only is it a beautiful city, it is also home to a very good research group. They are working on MR-guided high-intensity focused ultrasound (HIFU). Representing a new way to treat tumours in an MRI scanner with heat generated using ultrasound, this is a promising technology for the future.”
(2007)

**Keelin Murphy, BIS graduate**
Keelin Murphy worked as a software developer for a bank when she applied for the Master's programme in Utrecht: "I found banking a little bit cold and wanted to give something back to society." She now develops new techniques for detecting pulmonary 'nodules'. "Nodules are small structures that may or may not be a sign of early cancer. The idea was that we should be able to detect them automatically. They can easily be overlooked. When the radiologist wants to scan the lungs for some reason other than nodules, we can now tell the radiologist to also have a look at these automatically detected nodules and see if these are something to worry about."

"One of the reasons I chose Utrecht was because the ISI research centre is directly attached to the hospital. As we work closely with radiologists, we have a very good knowledge of what's needed. Such centres can sometimes be based in a computer science department far away from the hospital. When this is the case, you work in isolation and don't know if the applications you make are really clinically helpful." (2006)