‘Don’t lose sleep over funding’

Assistant professor Jouke Verlinden, from the faculty of Industrial Design Engineering (IDE), is one of four finalists competing for the Delft Entrepreneurial Scientist Award. While completing his studies in the United States, he became aware of how important external funding was for scientific research.

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Jouke Verlinden

Assistant professor, Faculty of Industrial Design Engineering

Jouke Verlinden studied computer science at TU Delft from 1988 to 1993. He completed his thesis at Georgia Institute of Technology. In 1993, he began working in industry where he spent the next seven years. He was a software engineer at Intersystems for a brief spell before moving to TransOpen to take up a post as director of the innovation lab. Two-and-a-half years later, he became senior interaction designer and project manager at Inforaat. Since January 2000, he has held the post of assistant professor at the Faculty of Industrial Design Engineering. He plans to complete his PhD in 2011. Verlinden is married with two children, aged four and seven.

How keen are you to clinch the title of Entrepreneurial Scientist 2010?

“I feel extremely honoured to be in the final four. I never expected it. But I’m in two minds about it. I’d love to win, yet at the same time I’m aware that the other nominees are all professors or assistant professors with VIDI accolades under their belts. They’ve already matured, as it were, and are at the top of their respective research fields. I’ve only just begun, and this faculty is also relatively young. I only started working as an academic in 2000. I studied computer science at TU Delft and completed my thesis project at Georgia Tech, in Atlanta. I then worked in industry for a while.”

Saskia Bonger

The United States is a considerable way ahead of us in terms of accessing funds.

“During my time there, I learnt that external money is very important for research. In that sense, returning to the Netherlands was a bit of an eye-opener. Computational sciences using parallel computer algorithms, virtual reality, simulations, software engineering, etc; it was all happening in America. One day, the private sector wheeled in a device worth 200,000 dollars for conducting research into virtual reality. The money was donated to the lab with the message: ‘we’re happy for you to do whatever you want with it as long as our name’s on it’. When I returned to the Netherlands armed with these stories, people found it difficult to comprehend. And they still do. If I want to embark on a research project, the first thing I’m asked is: can you use desk top research, can you do it without expensive experiments? My answer is ‘no’, at which point I turn to the private sector or apply for a grant.”

Nevertheless, it’s a different situation now then when you came back from the US in the early 1990s. Over the past couple of years, enterprise and valorisation have become inextricably bound to scientific research. The researcher now has to market his research and capitalise on it whereas beforehand the government would just hand over a sum of money.

“You certainly notice a shift, yes. For example, here at IDE, we have valorisation officers focusing specifically on this area. It’s very well promoted. But in practice, when carrying out the research, there’s still a degree of friction and it’s unclear whether collaborating with a company actually works. People also often find it difficult to know where to start. My advice is to look through the yellow pages and just start calling. If you keep trying, you’ll eventually speak to someone who’s interested in your idea.”

Some professors bemoan the fact that the valorisation side of things leaves them very little time for the actual research.

“You see that a lot in Germany where the only people involved are the professors and the PhD students – no middleman. The professor markets the research project and the PhD student carries out the work. The Anglo-Saxon model, on the other hand, has an intermediary layer of lecturers who set the parameters. In most cases, one person is allocated the task of sourcing the funds. At TU Delft, the professor isn’t expected to secure all the external funds alone. I’m not a professor and I still get involved.”

You were nominated for the Award by Delight Interactive Solutions, a techno starter that created a design table based on your patent. They call you a visionary, an investigator, an entrepreneur. Why don’t you wish to pursue research based on this patent yourself?

“I’m still involved on a regular basis – not on the payroll, but as an advisor. I’ve thought about doing it myself but this is really the students’ idea and work. There is still the issue of how I can gain greater stakeholder status, but I’m staying pretty pragmatic at
the moment. Right now, it’s more important that I complete my PhD in the next couple of months than that I have an 8 or 20 percent stake.”

How important is it for scientists to be entrepreneurial?

“It’s my long-held belief that science and industry must work very closely together, certainly in the field of Industrial Design Engineering. Industrial design boasts a long tradition of applied research. It’s only logical to make the connection with industry but somehow there’s still a palpable distance there. Nine times out of ten it’s graduates who provide the connection while completing their studies outside the faculty. If they don’t, they will never find a job in the outside world.”

Can you give an example of how you collaborate with industry through students?

“An example of a completely new device is the sailing simulator, which we designed for Innosport. It looks like a large tub fitted with a range of sensors. Professional sailors, of course, know which ropes to pull during a race, but how do you cope with wind, waves and the competition? The Olympic team coaches wanted to be able to simulate races to find answers to these tactical questions. We completed the sailing simulator within two to three weeks. A group of fanatic students from architecture, aerospace engineering and industrial design engineering worked on the project full-time.”

What is augmented reality?

“This is a question related to my thesis. Augmented reality is the art of combining digital images with the physical reality. There is a wide range of ways in which to do this. The method I use, and which I hold the patent for, is to project information onto a physical object using a number of projectors. This is a technique widely used in museums and theatres. But it is also useful for designers as it gives them a better insight into the aesthetic and functional aspects of a design.”

How does it work?

“Take, for example, this 3D print of a tractor. Augmented reality would enable you to project headlamps onto the image to see where they need to be fitted. This is an ideal way to give clients – people who don’t necessarily have an expert understanding of spatial concepts – a
clear impression of the design. I study how augmented reality affects the discussion between client and designer, or end-user and designer. Does it lead to better decision-making and better designs? It’s a known fact that outsiders, in particular, exert a significant influence on the design process. Take, for example, the client commissioning the new tractor. The client is shown nice pictures by the design company but finds it hard to imagine what it will look like in reality. They simply don’t have the spatial skills and understanding that designers are trained in. Nevertheless, they still want to see a good result.”

Without knowing exactly what that is.

“The key to being a good scientific entrepreneur is being prepared to turn the industry’s practical question into a knowledge question that is technically challenging. Take the sailing simulator. We were not asked to ‘build a sailing simulator’, but rather ‘what do we need to ensure we win more medals?’ I’m currently in talks with someone who works for the Government Buildings Agency that furnishes the royal palaces. A major problem here is the fabric wall coverings. This is a huge investment, but just try coming up with a pattern for it. It’s a bit late deciding something doesn’t look right once it’s already in place. Augmented reality allows you to project a design onto the wall beforehand. This is a research project for a graduate or postdoc. If there is no knowledge question involved, I pass it onto a company.”

The dictionary gives the following definition for ‘entrepreneurial’: ‘Not afraid to take on difficult or risky projects, adept at tackling problems’. I don’t imagine that’s everyone’s forte. Or is entrepreneur-ship something you can learn?

“A scientist needs to possess these qualities from the start. It’s no use staying in your room just talking to people within your own circle. You need to get outside, talk with people in industry, visit secondary schools. Everyone is capable of this to a certain extent but some, more than others, need the challenge of the situation to take it a step further. You can read numerous books on how to access funds but at the end of the day, you just have to go out there and do it. Don’t lose sleep over it. Of course, everyone has their own aptitudes. My own reference point for how scientific research should be practiced is America. I’ve never experienced the comfortable safety net of government funding. Instead, I have a long list of small and large subsidies that I managed to secure myself.”

Did you notice a drop in contract funding due to the global financial crisis?

“I noticed its effects in Germany. I’ve held lots of talks with big German car companies. My experience is that they are turning down Dutch research projects but continuing on as normal with German ones. I learnt this to my cost two years ago when I’d almost managed to convince two companies to channel big sums of money into my augmented reality projection project. They wanted six set-ups as soon as possible, but suddenly the contacts dried up and I wasn’t able to make any further headway. I’ve since heard that they are still going ahead with the project but the contract has gone to the German competitors. In the Netherlands, I work with a lot of small and medium sized companies. It’s on a somewhat smaller scale and these projects are still going ahead.”

How can an entrepreneurial researcher guarantee his scientific independence?

“I’ve never had any problems in that area. There is very little competitiveness within our sector. I know people in the pharmacology sector who don’t appear to enjoy such a healthy relationship with industry. In our case, it’s all very open and amicable.”

What are your future ambitions?

“I’d like to explore further the field of prototyping and social sciences. And I’ve enough material to write at least another three books on 3D-printing and augmented reality. It’s all about decision processes, about reaching an understanding, a consensus or even a conflict. I’m currently conducting research with the Royal Academy of Art in The Hague, and with Leiden University, to study how artists work with augmented reality and what designers can learn from them. Being design engineers, we traditionally try to keep as much distance as possible between ourselves and the art world. But the way in which artists work with technology goes a lot further than what design firms do. I’d like to have an artist in residence here. I think it would be good for someone with a different take on the process to observe what it means to manufacture and design.”

Besides your academic work, you also play an important role in employee participation. You are chairman of the Faculty Personnel Committee. Why did you choose to take up this post?

“I believe it’s important that all departments are represented in some shape or form. I’m also interested in learning more about the university’s administrative processes and having a say in how the faculty develops. I see the Personnel Committee as the faculty’s watchdog, its conscience. It takes up a whole day in the week but I feel it is my duty. It’s important that people are treated well and that we think carefully about the research we undertake and the kind of infrastructure we have in place.”

How do you relax in your spare time? Your LinkedIn page says you like jazz improvisation, tango and dance.

“I play the saxophone. For a while, I even thought about studying at the conservatory. My father was a jazz pianist, which meant I was privy to the scene early on – including the drinking culture and the continual hustling for gigs. Eventually, I came to the conclusion that the life of a professional musician wasn’t for me. But I love making and listening to music. My parents never forced jazz on me but I ended up falling in love with it quite unwittingly. I used to fall asleep listening to John Coltrane. Tango has the same improvisation appeal as jazz; neither follows any fixed rules. My wife and I have been dancing tango for years. I haven’t played as much since my children were born. It’s quite difficult to mute the saxophone. Once I’ve completed my PhD, I’m going to pick it up again.”

The Entrepreneurial Scientist Award was presented on Tuesday 23 November. The proud recipient was Professor Freek Beekman of the faculty of Applied Sciences. Beekman is conducting a study into instruments for medical research and diagnostics, which are being launched onto the market by the company MiLabs. Delft Outlook published a detailed article on his research in issue 3 of 2010.