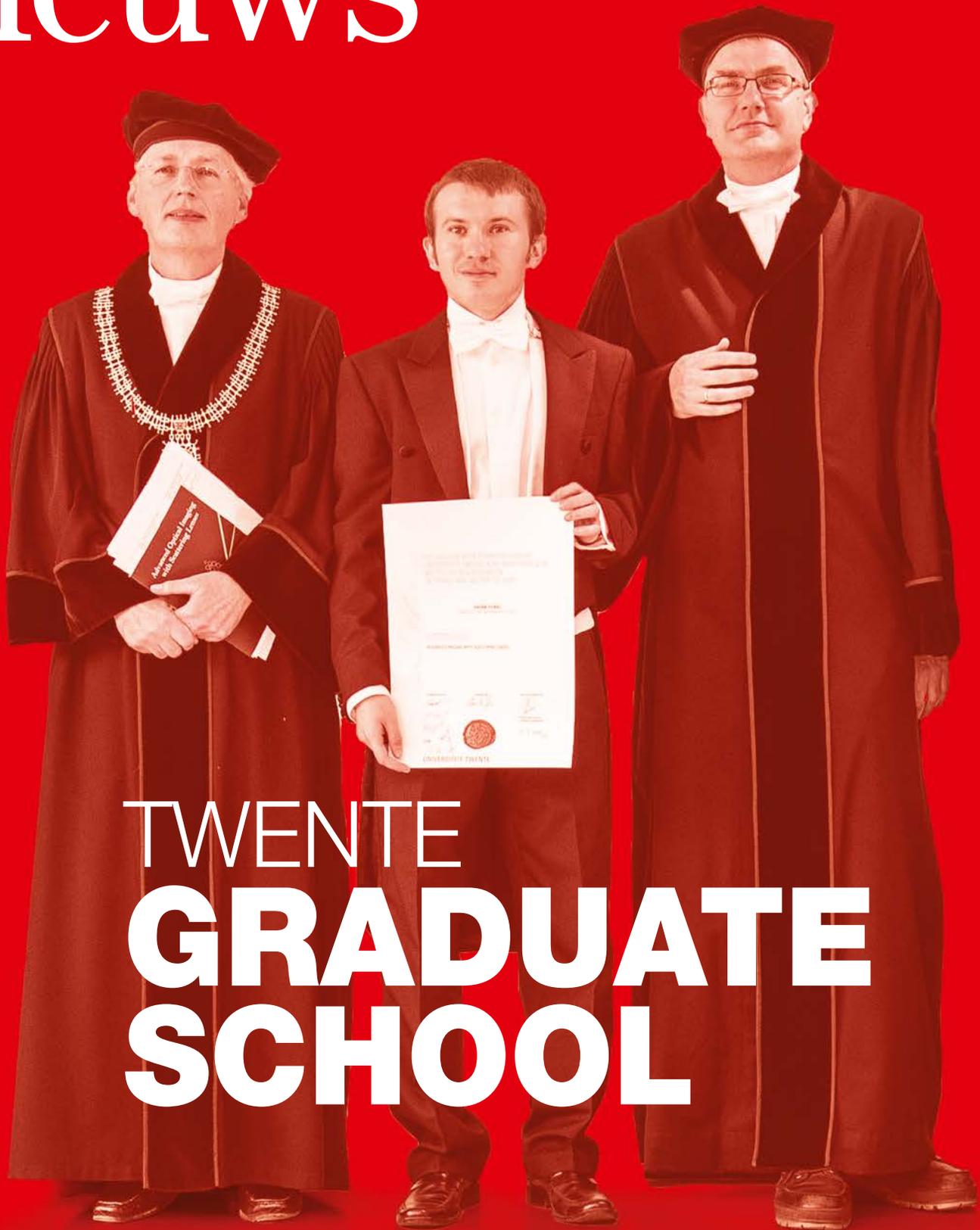


This special is an extra edition of  
UT Nieuws Magazine | September 2015

# UT nieuws

SPECIAL



## TWENTE GRADUATE SCHOOL

# OFFERING STRUCTURE AND CLARITY



A PhD candidate's stay at our university is an exciting and important step in his or her career. First and foremost, their own motivation and talent are important ingredients for the success of their endeavours.

Next, the quality of their supervisor(s) and the research group to which they belong contribute substantially to the undertaking, and it goes without saying that at the University of Twente we do our utmost to see to it that we do indeed provide an excellent scientific embedding for our PhD candidates.

Still, the road to a successfully defended PhD thesis is typically not without insecurities. Will you be able to find the answers to the questions you are researching, can the results be published in the right scientific journals, and can the thesis be completed in time? To tackle these issues successfully not only proper scientific supervision and embedding are necessary, but also a clearly defined process and framework that will help our PhD candidates to keep on track. This is where the Twente Graduate School (TGS) comes in. TGS provides the platform that ensures the optimal processing and monitoring of a PhD candidate's career at our university. The way of working of TGS provides clarity to our PhD candidates about how important aspects of their career are handled, what is expected of them, and what services are offered to them. With our monitoring system for PhD candidates we are a national leader. Our procedures offer transparency, as requirements and expectations are documented in the early stages of their work. This gives the candidate something that can be relied on.

TGS got started in 2009 with six programmes. By now, this number has grown to twenty, clustered in eight autonomous clusters. It is fair to say that TGS has helped us to make the careers of PhD candidates at our university more attractive. It has also enabled us to attract more talented students internationally, by creating combined MSc+PhD programmes: master routes and doctoral education. Although different from the traditional Dutch structure of degree programmes, these are better aligned with international standards, where talented students can begin working on their PhD's after having completed a suitable bachelor degree. We offer a similar possibility by integrating the educational programme of our MSc and PhD, and making the MSc thesis part of the research for the PhD. Soon, also the PDEng programmes will be embedded and monitored in the TGS structure in a comparable way. In this way, everybody profits from the services offered by TGS, but most of all our PhD (and in future also the PDEng) candidates themselves. By offering structure and clarity the candidates can devote themselves to what is most important: a successful dissertation!

**Prof. dr. Ed Brinksma**  
Rector Magnificus | University of Twente

## COLOPHON

This journalistically independent special of UT Nieuws was established in collaboration with Twente Graduate School.

**The following persons contributed to this special:** Ditta op den Dries, Sandra Pool, Maaïke Platvoet, Paul de Kuyper and Rense Kuipers (editorial staff UT Nieuws), Marloes van Amerom and Michaela Nesvarova (freelance editors), Arjenne Louter (columnist), Rikkert Harink and Gijs van Ouwerkerk (photography).

**Cover photo:** Rikkert Harink

**Graphic design:** Jeremiah Wetzal (SMG-Groep)

**Email:** [info-utnieuws@utwente.nl](mailto:info-utnieuws@utwente.nl)  
[www.utnieuws.nl](http://www.utnieuws.nl)

# CONTENT

4-5



**Interview Paul van Dijk**

10-11



**TGS Award and Sophie van Baalen**

12-13



**Photo report PhD defence**

4-5



**My PhD: six portraits of PhD candidates**

<b>Prodoc</b>	<b>6</b>
<b>TGS Workshop and Honours Degree</b>	<b>7</b>
<b>Ben Betlem: double degrees</b>	<b>8-9</b>
<b>PDEng Timo Meinders</b>	<b>14</b>
<b>Column PhD coach Arjenne Louter</b>	<b>15</b>
<b>Steps towards PhD</b>	<b>16-17</b>
<b>Doctoral candidates and teaching</b>	<b>18-19</b>
<b>TGS team: who is who</b>	<b>20-21</b>
<b>The role of clusters</b>	<b>22</b>
<b>Calendar TGS activities</b>	<b>23</b>

## Paul van Dijk on TGS now and in the future

# ‘PHD CANDIDATES ARE OUR CROWN JEWELS’

**From September onwards, Paul van Dijk will be the Twente Graduate School’s director. What inspires him and what direction will TGS take under his guidance?**

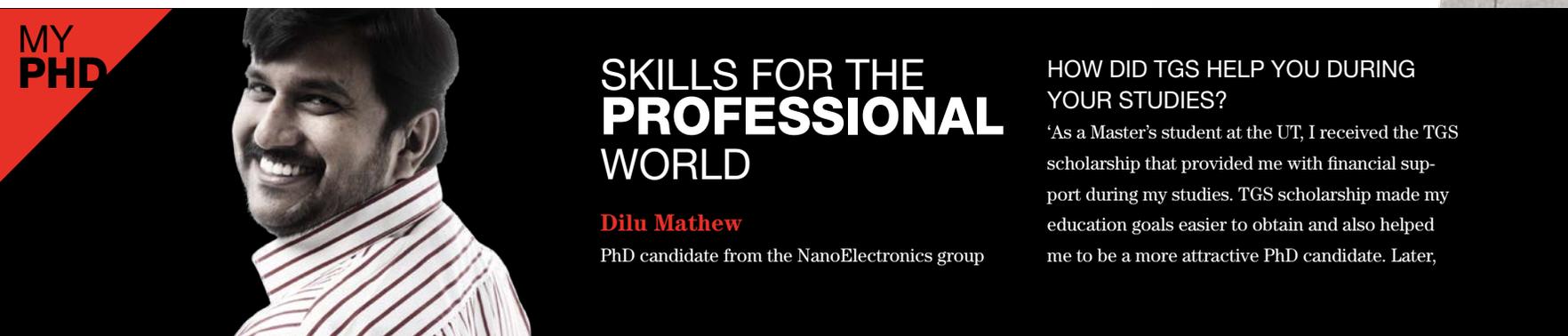
### WHAT HAS MOTIVATED YOU TO TAKE THE POSITION OF TGS DIRECTOR?

‘Looking back, I believe that the first seeds were already sown during my own PhD research in Geology, which I carried out in Australia. I worked with data from five different companies, which all had to stay confidential, turning my research into a potential tricky exercise. Thanks to the excellent way in which my supervisor had organized the data acquisition and research environment, this process never became messy or conflicting, however. That made me realize, that, in addition to the scientific results that are generated, the creation of a facilitating environment plays a great role in academic success. That awareness resurged during my academic career at the ITC. I supervised a considerable number of MSc and PhD students and became interested in the ways in which we could help them become independent researchers. When I became Head of Research there and facilitated around 150 PhD students who often experienced similar problems, I was glad to introduce measures to support the PhD trajectory: From training and supervision plans to a better link between MSc

and PhD research. This interest brought me ultimately to TGS, first as manager, and now director.’

### WHAT DO YOU CONSIDER TGS’S MOST IMPORTANT ACHIEVEMENT?

‘Thanks to the founding of TGS there is now one desk for all PhD candidates. The importance of this achievement becomes clear when we consider the diversity of our PhD population. Besides paid employees, PhD candidates may also be grant holders or self-funded external candidates, such as corporate professionals that embark on a PhD. Prior to TGS, the university didn’t always register non-employed PhD candidates, as a result of which the needs of the other two PhD groups were sometimes overlooked. Now they receive assistance as well. I am also proud of our PhD charter. It came into being in 2014 and as far as I know, we are the only Dutch university that has one. By describing the rights and obligations of both PhD candidates and their supervisors, the charter sheds more clarity on the PhD trajectory: from detailing when yearly progress meetings will occur to the fre-



MY PHD

## SKILLS FOR THE PROFESSIONAL WORLD

**Dilu Mathew**

PhD candidate from the NanoElectronics group

### HOW DID TGS HELP YOU DURING YOUR STUDIES?

‘As a Master’s student at the UT, I received the TGS scholarship that provided me with financial support during my studies. TGS scholarship made my education goals easier to obtain and also helped me to be a more attractive PhD candidate. Later,



quency of supervision meetings and possible appeal procedures for PhD candidates.'

#### WILL TGS OPERATE DIFFERENTLY UNDER YOUR DIRECTORSHIP?

'Yes and no. Nothing will change in the philosophy and starting-points of the TGS. Having said that, after the setting up phase we are now entering a consolidation phase, from which we can further expand. To offer PhD candidates even more tailor-made assistance with problems –whether these are personal or contents-based, we want to provide PhD coaching trajectories. Also, the connection between the Master and Doctorate phase is not yet optimal. Fortunately, my predecessor Petra de Weerd-Nederhof will still be active with the Honours trajectory and TGS Award.

Furthermore, we hope to further streamline administrative procedures, that now take a lot of time, for instance due to bugs in the computer system. After all, our administrative measures should facilitate people, not hinder them (laughs). Finally, we hope to invest even more in research quality assurance, for example with research visitations. We started with the registration and monitoring system only in 2014, so given the through put time of the PhD trajectory we should have more of an insight into the quality of our PhDs - and the processes leading up to them- in four years.

#### CAN WE EXPECT ANY CHANGES IN TRAINING THROUGH COURSES, TOO?

'Yes. We hope to encourage the TGS research clusters to offer more courses specifically aimed at PhDs in their discipline, besides the generic subjects offered by the Career Development Centre. This doesn't mean that PhD candidates therefore have to stay in Twente to fulfill all their course requirements. The idea is simply that the candidate can pick courses that suit him or her most, whether these are taught at Twente, at national research schools or abroad.

#### THE UT HOSTS MANY TYPES OF ACADEMICS. HOW WOULD YOU RANK PHDS IN THIS WHOLE?

'I consider them the UT's crown jewels. Mind you, professors and other staff are highly important as well, from their great contribution to research to their ability to generate funding. But then they were once also PhD candidates, so that's where it all starts. It's therefore crucial for a university to treat PhD candidates well, and to offer them the opportunity to display themselves. Only that way can they end up where we would like them to go: the top in science, so that the UT can be a top university.' I

I was also chosen for the Honours program. Now, as a PhD candidate I'm more involved with TGS. They offer specialized and generic courses, such as courses on time management or critical thinking. Those are great for my personal development as a researcher. Such courses were also offered in the past, but now receiving credits through TGS courses is mandatory,

which gives more freedom for candidates to choose courses of their own interest. TGS also allows us to get credits by attending summer schools or visiting other universities, which opens new possibilities for us.'

#### WHAT DO YOU CONSIDER THE ROLE OF TGS TO BE?

'TGS has taken the role of improving knowledge and skills of PhD candidates. TGS allows us to acquire skills, without which you can't survive in the professional world. That is important for me, because I'm thinking about becoming an entrepreneur after acquiring my PhD.' | TEXT: MICHAELA NESVAROVA | PHOTO: GIJS VAN OUWERKERK



# ON THE RIGHT TRACK

**Doctoral candidates come to the UT from all corners of the world. Once at the campus, they disperse over various faculties and institutes and write doctoral theses on a variety of subjects. But they have one thing in common: they all attend an intake interview with Cynthia Souren, coordinator of the Twente Graduate School.**

**I** sometimes say: it is matter of embracing them and setting them on the right track', says coordinator Cynthia Souren about her work for TGS. By 'them' she refers to the hundreds of doctoral candidates she meets every year during the intake interviews. Each PhD who starts at the UT visits her during their first weeks. During the 1.5-hour long meeting she conducts with each candidate, Souren mainly does a great deal of explaining. She tells them about the rules and guidelines of the UT; about where they can find information; what is expected of them and also advises them on how doctoral candidates can work on their personal development. She also provides information about ProDoc: UT's central registration and monitoring system.

'A file concerning each candidate is formed in ProDoc. It includes agreements that have been made and the outcome of evaluation moments. It is a truly personal document. This means that it is only accessible to the doctoral degree candidate, the thesis supervisor and the daily supervisor', says Souren. In addition, a back office - run by Danielle de Vries at TGS - is constantly available for the ProDoc system in case there is any problem.

#### **EQUALITY FOR ALL PHDS**

Registration in ProDoc has many advantages for the UT. 'It provides more insight into many things. For example, we categorise the doctoral candidates in different groups. Similar to the way VSNU does this.' In future, when even more doctoral candidates have been entered into the system, Souren expects that a great deal of interesting figures will become available. 'For example, if you know where most foreign doctoral candidates come from, it can teach you something about recruitment for the university.'

According to Souren, ProDoc also constitutes quality assurance for doctoral candidates and consequently also for the UT. 'It creates equality for all PhDs, who all have to meet the same requirements. For example, everyone is obliged to obtain 30 EC in the educational field.' ProDoc documents what the PhD will be doing and the system also records progress. The end of the ride for every PhD candidate is the doctoral degree ceremony, which also involves the presentation of the TGS certificate. |



Research honours forms a bridge between Master's degree and PhD

# 'A FLYING START AS A RESEARCHER'

**The research honours programme forms a bridge between a Master's study and a PhD. Talented students with research ambitions may join after selection. Training courses are provided in preparation for an academic career.**

**T**he pilot project started two years ago; then with seven students, now with twelve. 'During the bachelor's study there is a special honours programme,' says Nelleke van Adrichem about the rationale for the programme, 'but there was nothing for the master's students. There was a gap between the master's degree and PhD.'

To fill that, the Research Honours master excellence track has been created. 'This transcends the course level and offers an extra incentive to talented students and challenges them a little. They want something new, something special. We can offer this to them with this programs and the great thing is that science and social science students meet one another there.' Those who want to join in, follow a selection procedure. 'That is strict and does not only require good grades. They must be motivated and include a recommendation letter from a degree programme lecturer.'

## RESEARCH SKILLS

The Research Honours programme focuses on master's students who have an above average interest in performing research. They follow a programme comprising courses and workshops. 'Options include academic writing and presentation. The students really make improvements. For example, they learn to explain their research to a wide audience. In addition, there is an individual project, in the form of a publication in a leading journal or the writing of a research proposal. Another advantage is that the points attained by the students, 15 out of the 30, can be included if they opt for a PhD at the University of Twente. That saves time and gives them a flying start as a researcher.' According to Van Adrichem, participants come into contact with the

research world in a special way by following the programme. 'They not only create a network, but also develop research skills at this early stage.' I

## TGS WORKSHOPS

The TGS introductory workshop is scheduled four times a year and is perhaps the most important course for brand-new doctoral candidates. 'The workshop always has many participants', says Cynthia Souren.

'This introductory workshop comprises smaller workshops, such as those concerning "scientific integrity" provided by UT professor Peter Paul Verbeek. There are also several speakers who provide information to the PhD candidates. Such as a confidential advisor, but also a library employee who explains how to find information in the library.'

The introductory workshop is mainly intended to provide a good start to the doctoral degree process. Once underway, TGS offers several courses and workshops in cooperation with the Centre for Training and Development. Doctoral candidates are free to choose. 'Naturally, this is done in consultation with the professor. But it is also a matter of personal responsibility', says Souren. 'We see that people are pleased with the courses we offer, because ultimately it contributes to their personal development.' Souren states that the most popular course is technical writing en editing.

PhD candidates can also join several workshops that are organised by TGS within the context of the honours courses.

## Ben Betlem on double degrees

# A ROAD TO INTERNATIONALIZATION

Some of UT's international students are here thanks to double or multiple degrees, meaning degrees acquired at two or more different universities, often in different countries. What exactly do such study programs offer and why are they important for internationalization of the UT? 'Master's double programs attract excellent PhD candidates', explains Ben Betlem, who is responsible for internationalization plans of the Science and Technology faculty.

### WHAT IS THE DIFFERENCE BETWEEN A JOINT DEGREE AND A DOUBLE DEGREE?

'A joint degree is a single certificate awarded by at least two higher education institutions offering an integrated programme. The UT currently offers joint degrees only on national level, because international joint degrees are hard to establish in the Netherlands. There are many obstacles in the form of Dutch legislation that make it difficult to realize a joint degree, which needs to be a separate, new program outside of the already existing programs. Double or multiple degrees, on the other hand, are easier to establish, because they build on existing programs at the individual universities. A double (or multiple) degree therefore consists of two national degrees awarded by the two institutions.'

### DOES THE UT HAVE MULTIPLE DEGREES WITH INTERNATIONAL PARTNERS?

'Yes, the UT offers many multiple Master's and even some doctoral programs. There are Master's double degrees organized in collaboration with universities in Indonesia, Malaysia, China and also Europe. For example, there is a very interesting multiple degree in the field of membrane engineering that is offered at Master's and also at PhD level. For this program, we collaborate with universities in France, Czech Republic, Belgium, Portugal, Spain and Italy. During this program, students get to study at several universities and in several countries, but they usually conduct their final assignments at the UT. I think it is fascinating to get the chance to experience atmosphere at so many institutions and in completely different countries.'





**MY PHD**

**TGS HELPS STUDENTS TO EXCEL**

**Eva Leemans**  
Master's student of Technical Medicine

**HOW DID TGS HELP YOU DURING YOUR STUDIES?**

'During my Bachelor's studies, I followed the Honours Program and later I was invited to follow the Master's Honours program as well. This gave me the freedom to combine the program with my master's internships, to go abroad and to fill



## ARE THERE ANY INTEGRATED DOUBLE DEGREES?

‘There is also an international integrated program, which combines the Master’s and doctoral program into one – meaning, students take 2 years to acquire a Master’s degree, which is immediately followed by 3 years of doctoral studies in the same field. We organize a 2+3 program with cooperation of The University of Science and Technology of China. I believe such integrated programs represent the future of higher education. Many countries already have such integrated programs, and therefore it is important to adopt this system. However, it will be a large change for Dutch researchers, who are now used to having 4 years for their doctoral studies.’

## WHAT ARE THE MAIN OBSTACLES IN ESTABLISHING INTERNATIONAL DOUBLE DEGREES?

‘There needs to be a close research cooperation between two institutes in order to even try to establish a double degree. You need to find an equal partner, where also UT students would like to spend part of their study time. At this point, double degrees are mostly used by international students and not that many UT students go abroad, because the UT – in many cases – simply has better facilities. However, we are now working on changing that and we want to establish double degrees with cooperation of universities in Barcelona and Singapore.’

Organizing multiple degrees has many practical obstacles. For example, even semester systems are different in each country – our first semester starts in August, but elsewhere it might be as late as October. University of Twente wants to contribute to setting up an international network of universities, but it is not easy. We are not the only university searching for partners and compared to other universities the UT is not that well-known.’

## WHAT ARE THE ADVANTAGES OF MULTIPLE DEGREES AND INTERNATIONALIZATION?

‘We need Master’s double degrees in order to attract excellent students from all over the world, so they can stay at the UT for their PhD projects. That is the main reason we negotiate with other universities and you can already see the results. For instance, 70 percent of all PhD candidates at the MESA+ come from abroad. We want the best people at the University of Twente and we want to create an international environment – that is the overall goal of multiple degrees and international collaboration.’

my knowledge gaps and excel. I learned a lot about doing research during my Master’s studies and the Honours Program. It is hard to differentiate between the contribution of the TGS program and my Master’s studies, but the program surely taught me more about the academic world, grant proposals and academic communication. To be more precise, I published a

paper - my supervisors helped me to optimize the content and TGS helped me to optimize my writing with general tips and tricks.’

## WHAT DO YOU CONSIDER THE ROLE OF TGS TO BE?

‘TGS helps UT students to excel. The individual

tailoring of the Research Honours program makes everything possible. You can easily learn everything you need to broaden and deepen your knowledge, and therefore gain the confidence to realize your ambitions.’ | TEXT: MICHAELA NESVAROVA | PHOTO: GIJS VAN OUWERKERK

## Petra de Weerd-Nederhof on the usefulness of the TGS award

# 'HELPING STUDENTS REALIZE THEIR PHD DREAM AT UT'

Two years ago the TGS created the TGS award. What exactly does this prize entail and how are the winners selected? Former TGS director and TGS advisor Petra de Weerd-Nederhof tells all.



### WHY DID TGS CREATE THE TGS AWARD?

'Obtaining funding for a PhD can be time consuming and challenging. To help MSc students who want to do a PhD get 'into gear' and to retain their talents for the UT, we created this award. The award track entails that nominees – usually six to seven candidates – obtain a PhD salary for six months straight after their graduation. This allows them to organize the funding for their PhD. The winner of the award will, moreover, obtain €2.500 for 'doctoral education.'

### HOW OFTEN IS THE AWARD HANDED OUT?

'Yearly. Candidates are selected in two rounds: one in summer and one in winter. Each round we pick three to four candidates on the basis of their CVs and research proposal abstract.

How do we select the winner out of these six to seven candidates? First, two external experts in their field will judge their subsequent research proposal. Then they have to present and defend their plans in front of the TGS award jury, chaired by honours dean Miko Elwenspoek.'

### YOU YOURSELF WERE ALSO A JURY MEMBER. ISN'T IT DIFFICULT TO PICK A WINNER?

'It certainly can be. In 2014 there were three candidates that were particularly outstanding. It then comes down to endless comparing. We opted in the end for Sophie van Baalen. The high tech human touch aspect of her research, the originality of her ideas and her ability to already secure some funding won us over. But in 2013, when Rindia Putri won the prize, competition was also fierce.'

### SO CANDIDATES CAN EXPECT A HARD TIME?

'Yes, and no. They are up for a challenge, but we also help them. By offering workshops on how to carry out successful presentations and science communication, for instance. This year, five of the seven candidates participated in the Research Honours master excellence track which gives even further support in developing the research proposal.'

### HOW SUCCESSFUL HAS THE PROGRAM BEEN THUS FAR?

'I would say highly successful. Last year's candidates all secured a PhD position at Twente. The preceding year, all but one of the nominees stayed on. This year's prospects also look good; several candidates already heard that they can stay on as PhD staff.'

MY  
PHD

## TGS FACILITATES PHD STUDIES

**Ingeborg Bikker**

PhD candidate from the Stochastic Operations Research group

### HOW DID TGS HELP YOU DURING YOUR STUDIES?

'I was working on my graduation project in a hospital and wanted to continue with it for my PhD project, but to do so I first needed funding. I was nominated for the TGS award, which allowed me to apply for the bridging grant and I received it. That gave me the space to write a proposal and

Sophie van Baalen: winner TGS award 2014

# 'I FELT HUGELY ENCOURAGED'

Sophie van Baalen received last year's TGS award. What was it like to win it?

**W**inning the TGS award isn't just a 'huge honour', it has also been a huge encouragement, says Van Baalen, PhD candidate in philosophy of science in practice. She's not just talking about the finances, but also about the psychological impact of the prize. Taking a quick sip of her favorite hot beverage – cappuccino – she continues: 'Of course my supervisor Mieke Boon and myself believed in my research. But it was fantastic to have that vision supported by a team of experts.' She also felt relief at winning the award. 'Initially, I felt rather confident. I was happy with my proposal as well as my presentation in front of the jury.' Laughing: 'But then they presented me with some pretty tough questions on my methodology.' Fortunately, the jury announced her winner the next day. They were, among many other things, taken by her great enthusiasm. Indeed, each time van Baalen talks about her research, her eyes spark a little. 'I study how innovative imaging methods such as novel MRI techniques can be developed to best fit the daily requirements of medical practitioners.' Such an outcome isn't a given: 'From their design tables, engineers often have trouble realizing what doctors need. Conversely, medical practitioners may have ideas for innovations, but not know how to get these realized.' Communication between the two groups is hampered by differences in background knowledge, jargon and so on. 'When an engineer and a doctor look at an image they see different things'. By exploring these obstacles, Van Baalen hopes to ultimately find ways reconcile both worlds through better understanding.

## A TOPIC THAT SUITS YOU

She will spend part of the €2,500 award to visit Annemaria Carusi in Sheffield this autumn. 'She specialises both in the philosophy of science in practice and related methodologies, and in complex imaging techniques.' As such, the professor is an ideal expert to consult and help van Baalen sharpen her research even more. Holding Masters in both technical medicine and the philosophy of science, technology and society, Van Baalen has ideal credentials for her job. But the crucial thing for PhD candidates is to have a topic that suits you, she thinks. 'This not only makes your PhD more fun, it also becomes easier to convince others of its relevance.' |

*The winner of the TGS award 2015 is Maaïke Koenrades. She received the award during the Opening of the Academic Year 2015-2016 in the Waaier on 31 August.*



find a PhD project in healthcare logistics. If it wasn't for TGS, I wouldn't be able to do that. I've also taken some courses organized by TGS, such as project management and a course on how to write a research proposal, which helped me very much. Without it, I would have to search for similar information on the internet.'

## WHAT DO YOU CONSIDER THE ROLE OF TGS TO BE?

'Its main role is to organize courses and structure all PhD projects, therefore it facilitates PhD studies. It will also be helpful for me in the future for planning my professional career, because it also provides guidance in that area.' |

TEXT: MICHAELA NESVAROVA | PHOTO: GIJS VAN OUWERKERK



# HORA EST

In microscopy, light diffusion is normally to be avoided, as it can negatively affect the projected image quality. However, diffuse light may actually contribute to a better image, according to MESA+ researchers. They used scattered light configured in a speckle pattern as a microscopic light source, a setup that resulted in a high-quality image with a resolution of 0.12  $\mu\text{m}$ . Hasan Yilmaz presents these findings as part of his doctoral research on 'advanced optic imaging using scattering lenses', which he successfully defended Wednesday 1 July. UT Nieuws attended the ceremony to witness firsthand the rituals and customs of the PhD defense. Hora est!





## Professional Doctorate in Engineering (PDEng)

# CONNECTING UNIVERSITIES WITH INDUSTRY AND SOCIETY



**PDEng, which stands for Professional Doctorate in Engineering, is a doctoral program offered only at a handful of universities in the Netherlands, including the UT. Although a PDEng and a PhD are both post-master programs, they are very different. Timo Meinders, coordinator of PDEng programs at the UT, explains more: 'PhD candidates focus on research, while PDEng trainees develop a technological design.'**

### WHAT IS A PDENG PROGRAM?

'PDEng - Professional Doctorate in Engineering - is a two year post-Master's program offered only at three technical universities in the Netherlands. It puts academic research in an industrial context. The focal point of the program is a challenging and innovative technological design project, defined by and carried out at the client. As of 2016, UT's PDEng programs will be embedded in TGS and monitored via the ProDoc system.'

### WHAT ARE THE DIFFERENCES BETWEEN PHD AND PDENG PROGRAMS?

'PhD is research oriented and offers complexity in detail, while PDEng is focused on technological design and offers complexity in diversity. The PDEng is a more vocationally oriented doctorate in engineering than the traditional PhD and is suited to the needs of industry. A good PhD candidate should mostly be a good researcher, while PDEng trainee should represent a linking pin in a design team of a company. They should fill the position of a project manager, a qualified partner who is able to understand different disciplines on a sufficient level. As a PDEng trainee, you take state of art knowledge and put it into a design. The task of a PhD candidate, on the other hand, is to develop knowledge.'

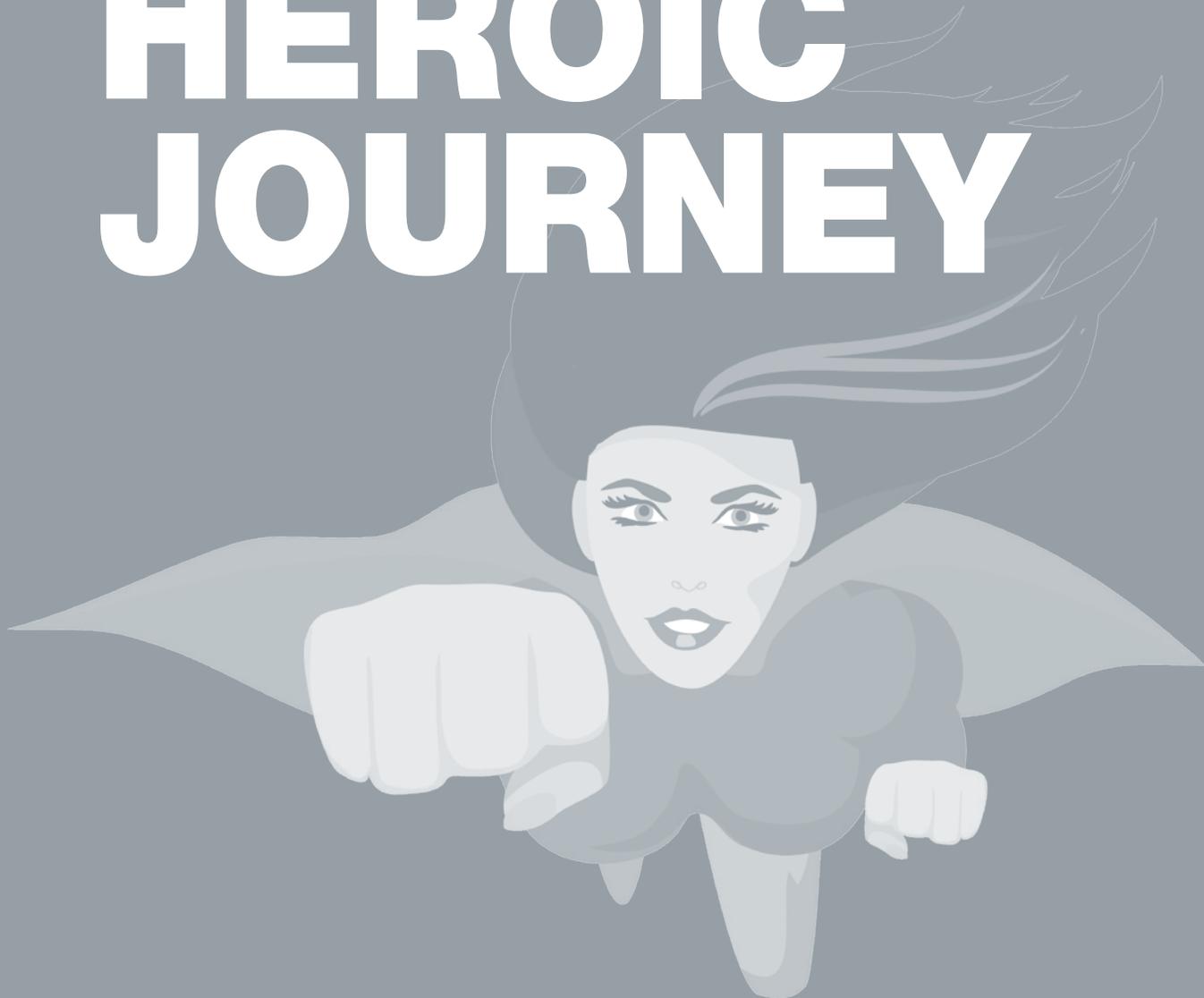
### HOW CAN YOU BECOME A PDENG TRAINEE AT THE UT?

'The admission process to become a PDEng candidate is very similar to applying for a PhD position, but people interested in PDEng program should be focused on design, not on research. We always first make a contract with a company and hire people afterwards, therefore the topic of person's studies is known from the very beginning. PDEng trainees are hired for a specific project, but sometimes they can help shape it. We offer five PDEng programs: Robotics, Healthcare Logistics, Civil Engineering, Maintenance and Energy & Process Technology. Our PDEng trainees work on projects in the fields of serious gaming, building information models, rehabilitation robotics, maintenance etc.'

### DO YOU THINK SIMILAR PROGRAMS COULD BE USED IN OTHER FIELDS BESIDES ENGINEERING?

'PDEng seems to be relatively new, but only the name is new. The concept is over 20 years old. I think it is a great way to transfer knowledge from the academic environment directly to the society. It is a great tool that connects universities with the industry and society and could also be used in non-technical fields.'

# THE PHD CANDIDATE'S HEROIC JOURNEY



**W**ill you? Or won't you? OK: you're going for it, your doctorate. Because, after all - even if you're not completely certain that you can do it - it's what you really want. Doing research, contributing to science, and then taking that next step. The degree as proof that you've truly achieved something. Great to look forward to! An exciting journey.

Those first enthusiastic discussions with your mentor, clarity about your research question, reading and reading and reading... The vision of all those beautiful articles you'll write, that fabulous dissertation.

You wake up happy every morning. You're a hero.

And then that doubt. It's not exactly easy. Can you really do it? Writing's a pain. Your experiment fails. You don't understand your mentor. And it all takes such a terribly long time. Just a few more minutes with my head on the pillow?

Fortunately, your roommate has a few tips for you. Your mentor recommends some articles that help you along further. You push on ahead happily. Your first article is finally accepted. Stop thinking about how many times you re-wrote it. It's been accepted. Let's party!

And then it all comes crashing down. Too little time for everything that has to be done. Too few hours in a day. Too little progress. You hardly dare encounter your mentor. You've gotten good at delay

tactics. Guilt is an all-too-familiar friend. So you work even longer.

You no longer know it's the weekend. You'd rather just be lying in bed. Was I travelling? Who was talking about heroes?

Will it ever end? Will you be one of the heroes who makes it... or not? The sad statistic is that only 10% of all PhD candidates graduate within 4 years.

What's the secret of those who do make it? They pay attention not only to the content of their dissertations, but also to the process of getting a PhD. They ask themselves not just what they have to do, but also - and especially - how they need to do that. How do you plan, write, get feedback, and have good discussions with your mentor? So be a hero. Reach your final goal successfully and on time by asking "how" questions.

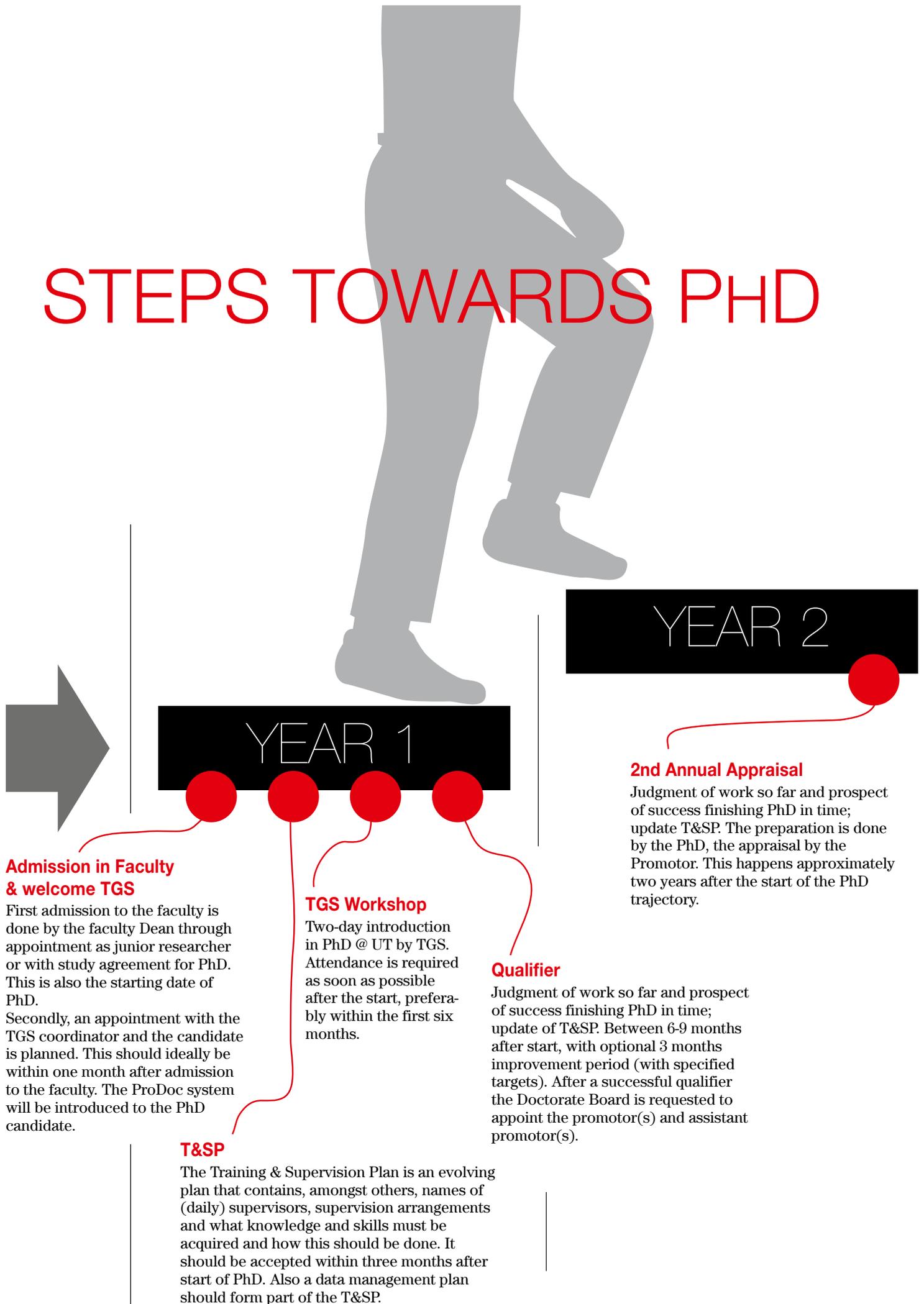
You'll find plenty of answers on my blog.

Arjenne Louter  
[thedutchphdcoach.com](http://thedutchphdcoach.com)

*Arjenne Louter works with  
 TGS on a pilot for 3-day  
 writing course*



# STEPS TOWARDS PHD



## Admission in Faculty & welcome TGS

First admission to the faculty is done by the faculty Dean through appointment as junior researcher or with study agreement for PhD. This is also the starting date of PhD.

Secondly, an appointment with the TGS coordinator and the candidate is planned. This should ideally be within one month after admission to the faculty. The ProDoc system will be introduced to the PhD candidate.

## T&SP

The Training & Supervision Plan is an evolving plan that contains, amongst others, names of (daily) supervisors, supervision arrangements and what knowledge and skills must be acquired and how this should be done. It should be accepted within three months after start of PhD. Also a data management plan should form part of the T&SP.

## TGS Workshop

Two-day introduction in PhD @ UT by TGS. Attendance is required as soon as possible after the start, preferably within the first six months.

## Qualifier

Judgment of work so far and prospect of success finishing PhD in time; update of T&SP. Between 6-9 months after start, with optional 3 months improvement period (with specified targets). After a successful qualifier the Doctorate Board is requested to appoint the promotor(s) and assistant promotor(s).

## YEAR 2

## 2nd Annual Appraisal

Judgment of work so far and prospect of success finishing PhD in time; update T&SP. The preparation is done by the PhD, the appraisal by the Promotor. This happens approximately two years after the start of the PhD trajectory.



## Graduation

Public defence of thesis by candidate. This is the end date of the PhD.

# YEAR 4

# YEAR 5

# YEAR 3

### 3rd Annual Appraisal

Approximately three years after the start of the PhD trajectory. In addition to the points mentioned for the second annual appraisal, now also the planning of the defence is made.

### Planning Defence

Planning of date and composition of committee according to Doctoral Regulations. This is approximately six months before graduation ceremony.

### TGS Education Certificate

The evaluation of the T&SP (in total  $\geq 30$ EC credits) by the Promotor and Director TGS. This is to be completed at time of planning of defence

### Admission to Defence

This is pending the response of the committee within six weeks after the appointment, according to the Doctoral Regulations..

### Exit Interview (or Questionnaire)

Feedback of the PhD on the whole process. TGS invites and the young doctor responds. This follows immediately after the public defence (or in case of early termination).

### Alumni

PhD graduates are included in the worldwide UT alumni network.

# TWENTE GRADUATE SCHOOL

## Doctoral candidates and teaching

# FREE PERIOD? WRITING A DOCTORAL THESIS

**Obtaining a doctoral degree or become a teacher? This was the choice facing Mark Timmer (31) after he had obtained his bachelor telematics with distinction and his master Computer Science in 2008. In the end he chose both. He obtained his doctoral degree and he teaches mathematics at a high school in Raalte.**

**I** already taught laboratory courses and tutorials during my studies. After I had followed the minor Knowledge Transfer (now: Learning how to teach - ed.) during my bachelor I was certain that teaching suited me. But research also fascinated me very much. I had a lot doubts about what I would do after my master's,' says Mark Timmer.

In the end, he decided to obtain a doctoral degree. He feared that obtaining a doctoral degree was never going to happen if he went for a classroom career. The other way around, i.e. working in education after doctoral degree defence and ceremony, did seem possible to him. In the end he decided to do both: obtain a doctoral degree and teach. He attend the teacher training course during his doctoral research and for a period of six months he taught mathematics at the Carmel College Salland in Raalte, which is the school where he still works, two days a week.

The University of Twente encourages PhD's to teach high school in addition to their research, via the programme 'Doctoral candidates and teaching'. Timmer: 'You get additional time for obtaining your doctoral degree, in my case eight months (now at most six months, ed.). In order to obtain my teaching credentials, I had to follow some of the courses of the teacher training course such as teaching methods and educational science. I received an exemption for other

subjects because I had already attended the Knowledge Transfer minor.'

### REMOVE BRACKETS

It was hard despite the additional time he received for obtaining his doctoral degree, acknowledges Timmer. Especially in the 2012-2013 academic year. He has since passed the teacher training course and he has got a job for 40 per cent at the Carmel College Salland. 'That was the year my doctoral thesis had to be finished as well. A busy period for a doctoral degree candidate. And your first year in front of a class is busy as well. But I really enjoyed the fact that I was not constantly involved in my research. I would check tests if I did not feel like performing research for a while. And, conversely: I would grab my laptop and work on my doctoral thesis whenever I had a free period.'

One day Timmer would work on quantitative Modelling checking, a field within theoretic computer science for analysing the quality of computer systems, and the next day he would teach his VWO (university preparatory education) students Remove brackets. 'Quite a difference' he confirms. 'People sometimes asked if I did not consider teaching to be boring or too easy. Definitely not. To the children their mathematics is just as difficult as the mathematics from

MY PHD



IT KEEPS THE DREAM OF BECOMING A PHD ALIVE

**Peter Binipom Mpuan**

Master's student of Philosophy of Science, Technology and Society

HOW DID TGS HELP YOU DURING YOUR STUDIES?

'TGS is actually one of the reasons, why I decided to study at the UT, because it is responsible for integrated Master's and PhD program, which allows you to transition from Master's studies into PhD research. I've also attended many of their open workshops such as Scientific Integrity,



my doctoral research. Perhaps this made it even more difficult for me initially. Whenever I would write a paper I would know what my colleagues understood, but at a school you have to imagine what the children do not know yet.'

Timmer was so fascinated with teaching that he decided to go all the way for a classroom career after his doctoral degree defence and ceremony in 2013. He was a successful researcher, he won the Overijssel PhD Award 2014 for example, but the prospect of being involved with students was more appealing to him than writing new papers. 'In education, you see the result of your work immediately. This can take years in the case of research. At the end of an hour, students are able to solve problems they did not yet understand at the start of the class.'

Incidentally, he has not said goodbye to research entirely. He will return to UT one day a week as of the next academic year; he will start work as teaching methodology teacher at the ELAN teacher training course.

### INVESTIGATIVE ATTITUDE

According to the mathematics teacher, his students – Timmer teaches

classes 2 up to 6, especially at VWO – enjoy it when he teaches them about university. 'I once brought my doctoral thesis to class. They do not understand it, but they consider it interesting to glance through it because it looks difficult. A girl once asked me: "Obtaining a doctoral degree sounds very nice, but I cannot imagine doing it in mathematics. Can you also obtain a doctoral degree in other fields?" Yes, of course. I enjoy telling them about such things. University and obtaining a doctoral degree are things they know little about. Timmer says that it is important that high schools find a way to get more PhD's in front of the class. 'You know what happens at a university and you can transfer your enthusiasm for research to the students. What is more, as a doctoral degree candidate you have an investigative attitude; you do not accept everything as the truth. I try to instil that attitude in my students as well. I always give a notion as to why something is the way it is. I want to give that idea to them even though they do not always have to be able to do this during their examinations. First know why and then complete the formulas. And sometimes I enjoy telling them something very complicated just to show how far mathematics can go - and of course how beautiful mathematics actually is.' I

which I found very beneficial. My first direct contact with TGS was when I participated in the Master's Honours Program.'

### WHAT DO YOU CONSIDER THE ROLE OF TGS TO BE?

'For me, it keeps the dream of becoming a PhD alive. I couldn't imagine studying here without

TGS. It provides place for my ambitions and contacts. It provides environment that allows you to be fully involved in graduate research and also interact with professors. I'm participating in Research Honours Program, thanks to which I can learn about research and scientific communication. The program gives you the opportunity to write a PhD proposal or an article

and get feedback on it; it also provides research training and workshops that are very engaging and teach you all practical aspects of being a researcher - how to write good articles, use ethics and new techniques.' | TEXT: MICHAELA NESVAROVA | PHOTO: GIJS VAN OUWERKERK

# THE TGS TEAM

**LIQIN BROUWERS-REN | TGS Award coordinator and PhD introduction workshop coordinator**

**What I do:** 'With the TGS Award, I try to encourage young, talented master's students to start their PhD tracks. During the last phase of their studies, particularly, this can be a helping hand. The workshops are designed to introduce the new PhDs and to make the road through their research an easier one.'

**LISENKA VAN HET REVE | Secretary**

**What I do:** 'As the secretary, I support TGS employees and help them execute such projects and activities as ProDoc, Master Research Honours, TGS Award, etc., and I make sure that everything runs smoothly internally. In addition, I am the first point of contact to the outside.'

**MARJA ROELOFS | ProDoc liason with HR (not in picture)**

**What I do:** 'I support the TGS with the software application Prodoc. I help with the search for solutions to problems in the system and needs of the staff of TGS, promoters and PhD candidates in Prodoc. This is part of my work in the HR department.'

**EMMY CHERET | ProDoc back-office employee (not in picture)**

**What I do:** 'I am a point of contact for PhDs and PhD candidates concerning the ProDoc system and its application.'

**PETRA DE WEERD-NEDERHOF | Advisor**

**What I do:** 'I was involved in the establishment of TGS and was its director until August. As an advisor, I focus primarily on the link between master's and PhD degree programmes and I help formulate TGS' strategy. I also lead the master's research honours programme, which allows master's students to start their PhD programmes more quickly and efficiently.'

**NELLEKE VAN ADRICHEM | Educational professional at CES, seconded to TGS**

**What I do:** 'I develop and optimise the master's research honours programme and PhD education within TGS. With this education, extremely talented UT students can get the best from themselves.'



**MY PHD**

## SPACE TO SHARE EXPERIENCE

**Bastiaan Bruinsma**  
Graduate with a double Master's degree in European studies

**HOW DID TGS HELP YOU DURING YOUR STUDIES?**  
'After I finished my Master's studies, I found out about TGS call for the bridging grant. I applied and I received the grant for six months, which allowed me to work on my PhD proposal. Thanks to this grant, I'm now also working on a conference



**ANNE DIJKSTRA | Master's research honours programme student support**

**What I do:** 'I give students extra challenges and provide them with handholds. My goal is to have students and scientists develop a broader view of science and research, focused on society and the relationship with society.'

**PAUL VAN DIJK | Director**

**What I do:** 'Until August, I was a manager; I'm now the director. PhD candidates are essential for the university. Not much research would be performed without them. We're there to help their entire process run as smoothly as possible and to support them as necessary. As the director, I lead this process.'

**CYNTHIA SOUREN**

**| Coordinator**

**What I do:** 'My task is, amongst others, to conduct the intake interviews with fresh PhD candidates. This involves a lot of explaining. About rules and regulations, where to find relevant information, how the PhD registration and monitoring system ProDoc works, etc. Finally I point to possible doctoral education courses within and outside the UT.'

**MYRNA HOFMAN | Marketing & Communication, seconded to TGS**

**What I do:** 'I make sure that people know and recognise TGS from our communications. In the big picture, too - i.e., internationally - for purposes of profiling UT.'

**NICOLE LETTEBOER | Financial account manager (TNW)**

**What I do:** 'I'm the financial contact person for TGS. The annual budget must be spent responsibly. An important part of this is the TGS Bridging Fund intended for UT master's students who want to get their PhD. The best proposals receive six months' salary as an aio.'

**DANIËLLE DE VRIES**

**| ProDoc back-office employee**

**What I do:** 'I am the first point of contact for PhDs and PhD candidates concerning the ProDoc system. If they get stranded in the system, I help them so that their PhD track flows smoothly.'

article, which I will soon present at a conference in Vienna. I'm very happy that TGS and UT supports people in going to conferences; you can often learn more there in two days that you would otherwise do in six months.'

**WHAT DO YOU CONSIDER THE ROLE OF TGS TO BE?**

'If you ask for help, TGS is always willing to give it. You only need to show a bit of initiative. They organize a lot of workshops. I attended one on writing a scientific paper, which I found very useful. I like that they organize Master's courses, I think it

helps to get more students interested in doing PhD. On top of that, because TGS represents a graduate school for the whole university, it gives students space to share experience. You get to meet people from other faculties, who you would otherwise never interact with.' **| TEXT: MICHAELA NESVAROVA | PHOTO: GIJS VAN OUWERKERK**

# THE ROLE OF CLUSTERS

With regards to content, Twente Graduate School is working with eight so-called clusters within the UT. Professor Petra de Weerd-Nederhof explains the situation.

## WHY DO CLUSTERS EXIST?

'The chairs and departments are represented in clusters at TGS, because we as TGS cannot always meet with every individual chair separately when drawing up the guidelines for the content of the 30EC doctoral education. The clusters are autonomous, you could also speak of "MESA+ Graduate School @TGS", "CTIT Graduate School @ TGS", etc. Each research institute at the UT has its own clusters, ITC included, and the Faculty of Engineering Technology has a separate cluster called Science-Based Engineering. In addition, there are several specific clusters that perform research that exceeds the boundaries of research institutes and faculties, such as the Ethics of Technology cluster, which is also connected to the 3TU Centre of the same name in which the programme paths for MSc+PhD have been established. There are currently eight clusters in total, which can all be found on our websites with a brochure and additional information.'

## WHAT IS THE ROLE OF CLUSTER LEADERS?

'The collaboration with the clusters is done through the so-called

cluster leaders consultation. This group contains one representative per cluster who think along with Twente Graduate School about, for example, the best possible offer of Academic Skills and Broadening courses that the UT should make available to doctoral candidates through career training & development, Educational Services, B&A, Kennispark and our Language Centre. In addition, the new TGS website, brochures per cluster, recruitment strategies and study paths via the master's programme, the role of joint and double degrees for the best possible MSc+PhD study paths are discussed in these meetings.

It is actually a type of education centre of doctoral degree programs, in which the Doctorate Board (the deans) takes on the role of examination board, and a Graduate Board is the umbrella organisation that keeps a close strategic eye on things. The Graduate Board consists of scientific directors and deans and is, for instance, responsible for possible expansion of or additions to clusters. The cluster leaders meet four times a year and the PDEng programmes are represented in these meetings as well.'

## THE CLUSTERS & CLUSTER LEADERS

### NANOTECHNOLOGY

MESA+ | Gertjan Koster

### BIOMEDICAL ENGINEERING

MIRA | Bart Koopman

### INFORMATION TECHNOLOGY AND COMMUNICATION

CTIT | Jaco van de Pol

### SOCIAL SCIENCES, INNOVATION & GOVERNANCE

IGS | Bas Denters

### GEO-INFORMATION SCIENCE AND EARTH OBSERVATION

ITC | Alfred Stein

### SCIENCE-BASED ENGINEERING

CTW | André de Boer

### ETHICS OF TECHNOLOGY

3TU Ethics; separate programme | Philip Brey

### COMPUTATIONAL SCIENCE & ENGINEERING

separate programme | Stefan Luding

# CALENDAR

## TGS ACTIVITIES

<b>31 August 2015</b>	Opening Academic Year UT with TGS Award 2015 winner
<b>13-16 September 2015</b>	3 Day PhD Thesis Writing course (2EC)
<b>15 September 2015</b>	Deadline TGS award application (for students graduating in Fall/Winter)
<b>24 September 2015</b>	TGS Introduction Workshop
<b>1 October 2015</b>	Opening Academic Year ITC with ITC Research Award winner
<b>5-9 October 2015</b>	Grants Week 2015 with Information Meeting TGS Award and Research Honours
<b>15 October 2015</b>	P-NUT PhD Day
<b>Fall 2015</b>	Screening The PhD Movie 2: still in Grad School (cooperation with PhD Network Twente)
<b>Mid November 2015</b>	Change Leaders and Management (broadening course - 5 EC)
<b>14-16 December 2015</b>	Philosophy and Ethics week (broadening course - 2 EC)
<b>10 December 2015</b>	TGS Introduction Workshop
<b>10 December 2015</b>	Kick Off Research Honours 2015-2016
<b>15 January 2016</b>	Deadline TGS award Application (for students graduating in Spring/Summer)
<b>Early February 2016</b>	Advanced Science Communication (broadening course - 5 EC)

All starting dates for the academic skills and development courses will be announced on the Centre for Training and Development website: [www.utwente.nl/ctd/en](http://www.utwente.nl/ctd/en)  
 Full activities overview: [www.utwente.nl/go/tgs-agenda](http://www.utwente.nl/go/tgs-agenda)

 MY  
PHD


### TGS OPENED DOORS FOR ME

**Ron Hendriks**

PhD candidate from the Inorganic Materials Science group

#### HOW DID TGS HELP YOU DURING YOUR STUDIES?

'When I was working on my Master's assignment, my supervisor nominated me for the TGS Award. During the meetings and workshops with the other nominees, I learned about grant-writing and presenting your topic to a jury. Moreover, thanks to the TGS Award bridging grant I was able to aid in a grant proposal, which wasn't successful but still opened doors for me. I was contacted by the Inorganic Materials Science group to do my PhD there on solid-state batteries. As a PhD candidate, TGS provided me with an overview of the following four years and I participated in the TGS introductory

workshop, which I found insightful. I also attended the workshop on 'How to publish a successful paper', where I learnt helpful tips to take into account when writing a paper.'

#### WHAT DO YOU CONSIDER THE ROLE OF TGS TO BE?

'In my view, TGS is the central place to govern your PhD track, making sure you do not lose yourself in your research. Furthermore, through the courses that TGS organizes, you can extend your skill set and strengthen your weak points, like presenting, writing a paper or your thesis.' | **TEXT: MICHAELA NESVAROVA | PHOTO: GIJS VAN OUWERKERK**

