



UNIVERSITEIT VAN PRETORIA  
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# EBIT generation

Innovating our tomorrow

Faculty of Engineering, Built Environment and Information Technology (EBIT) at the University of Pretoria (UP)

[www.up.ac.za/ebit](http://www.up.ac.za/ebit)

## DEAR PROSPECTIVE EBIT STUDENT

We can't wait to welcome you to the EBIT generation. This generation is motivated and inspired to innovate the world they live in for themselves and their fellow human beings.

With this newsletter for new and prospective students to the Faculty of Engineering, Built Environment and Information Technology (EBIT),

we are bringing you stories of encouragement. We hope that the achievements of our current EBIT generation students will motivate you to keep your focus and to continue working hard to reach your goals.

In preparing for your exams, I want to leave you with this quote from Henry David Thoreau: "What you

get by achieving your goals is not as important as what you become by achieving your goals".

We are looking forward to welcoming you to our EBIT generation 2018 and we wish you all the best with your exams.

**Prof Alta van der Merwe**  
EBIT Deputy Dean: Teaching and Learning



Jonathan in the water.



Jonathan in his HandiKart.

At the age of six, Jonathan lost his foot when he fell off the back of a small tractor lawnmower and the doctor advised his parents to amputate. However, setbacks do not faze him. Jonathan matriculated from Hilton College in KwaZulu-Natal and obtained his pilot licence in his Grade 12 year. He also took up paddling in Grade 10, and received professional training from Grade 11 onwards.

As a rower, Jonathan represented South Africa at the Para World Championships in Moscow and in

Milan, and he also qualified for the C-final when he was 17. On national level, he is currently the only rower competing in the category for people with prosthetic limbs.

"My challenge is to stay fit and to improve my upper body strength. I have a healthy and disciplined lifestyle, which includes a lot of gym work and, on Saturday afternoons, I paddle for two hours on the dam at LC de Villiers. I hope to become the second Paralympic canoeist from

## Built for speed – meet Jonathan Wing

Jonathan Wing is a second-year Mechanical Engineering student who loves speed. Whether he is canoeing, flying or winning the World HandiKart Championship – the sky is the limit. He is driven to do well and he wants to be proud of anything he attaches his name to.

Africa to qualify for the Olympic Games in Tokyo in 2020. Graham Paul was the first."

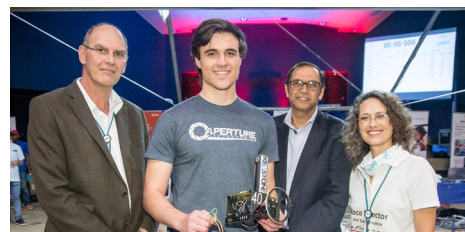
Jonathan says that he is disciplined about managing his time and doing well in his studies. He says that he attends all the lectures and makes notes in every class. His motto is: "Don't leave what you can do today, for tomorrow." We are excited to be backing Jonathan when he competes in Tokyo in 2020!

Watch this video clip of Jonathan on [www.up.ac.za/tukssport](http://www.up.ac.za/tukssport): #Elevate2Greatness

## 5<sup>TH</sup> ROBOT CAR RACE DAY: MAN AND MACHINE BOUND TOGETHER TILL THE END

[Read more about the project](#)

The annual Robot Car Race Day, presented by the Department of Electrical, Electronic and Computer Engineering, is a festive event where the Department's third-year students have the opportunity to demonstrate their accumulated skill-set after five semesters of engineering studies. The event, now in its fifth year, originated at the end of 2012 as the brainchild of Prof Tania Hanekom, who at that stage had been the lecturer for the third-year microcontrollers module (EMK310) for eight years.



Petri Oosthuizen and his car conquered the 2017 challenge. Hard work and determination is his recipe for success.

## The fun never stops when engineers put their skills to the test!





Akani Simbine is a 2016 Rio Olympic finalist in the 100 m, the South African record holder in the 100 m sprint and a Diamond League gold medalist.

## UP TRACK CHAMPION GRADUATES FROM EBIT

Akani Simbine graduated with a Bachelor of Information Science on 8 September 2017. The proud Tuks alumnus describes his experience at the University of Pretoria as "amazing!"

He says that the facilities and support from UP have been great, and equipped him to study and progress as an athlete at the same time. "Completing this degree has allowed me to learn a lot and grow as a person. It has provided me with a pathway outside of the sports arena, and this is something that I encourage all professional sportspeople to consider. I have gained a qualification that no one can take away from me."

Akani obtained a scholarship from UP after his first year and was later assisted by the South African Sports Confederation and Olympic Committee (SASCOC). Surprisingly, his academic journey has also enabled him to improve his performance on the track. He says that "my degree in the IT field has taught me that, due to this field constantly being in a state of change and advancement, one has to be open to change, be prepared to grow and be in the loop of these new developments in order to be on top of your game." He has also adopted this mindset in his athletics in order to be prepared and open to new ways of improving his performance."

[Read more](#)

## Second-generation winner of the Advancement of Science Medal

On 14 August 2017, Shruti Lall received the Bronze Medal of the Southern Africa Association for the Advancement of Science (S<sup>2</sup>A<sup>3</sup>). The S<sup>2</sup>A<sup>3</sup> Bronze Medal is awarded annually to the most outstanding research student in a scientific subject graduating at master's level at each South African university or university of technology.

The Award was presented at the ceremony by Prof Walter Meyer, a member of S<sup>2</sup>A<sup>3</sup> and representative of the Association. He noted that this prize-giving was made even more auspicious by the fact that Shruti's mother, Prof Namrita Lall, had received the same award. Shruti completed

her master's degree in electronic engineering, specialising in wireless network security, supervised by Prof Sunil Maharaj, Dean of the Faculty.

In her research, Shruti investigated the optimal placement and power allocation of protective jammers in wireless networks, which involved the development of security-comprising protective jammers, optimally placed to afford wireless networks protection against malicious devices that seek to obtain confidential information. She is also a recipient of a Fullbright Scholarship, and is pursuing her PhD at the Georgia Institute of Technology in the USA.



Shruti Lall with Prof Sunil Maharaj and Prof Stephanie Burton, Vice-Principal: Research and Postgraduate Education.

## EBIT STUDENTS MAKE A DIFFERENCE

The University of Pretoria's commitment to community upliftment is evident in the compulsory JCP module for students in the EBIT Faculty. Students are encouraged to use the skills from this course in their future careers to assist people and organisations.



The students are required to create a video or a visual diary of their projects. These are available on YouTube at the following link: [https://www.youtube.com/watch?v=\\_7sGfsuLzeQ&feature=youtu.be](https://www.youtube.com/watch?v=_7sGfsuLzeQ&feature=youtu.be).



Tekkie Tots is a special Science, Technology, Engineering and Mathematics (STEM) programme designed by the Council for Scientific and Industrial Research

(CSIR). One JCP group took their skills to Sunnyside Pre-Primary School. Over a few weeks, the students used extremely creative means to explain complex ideas to the children and taught them about shapes and structures, healthy bodies, colours and counting, as well as mixing ingredients; making science fun and accessible.



Brooklyn SAPS also received assistance from JCP students who revamped the local police station's victim room to make it warmer, more inviting and comforting for people who have suffered traumatic experiences.



Some of the students formed groups that used the University's Mamelodi Campus as a central location to empower residents of Mamelodi with basic computer literacy skills. They said: "JCP was a great learning experience for us. The community project gave us an opportunity to apply our academic knowledge and teach it to other people. We believe that doing community work is of the utmost importance to young people as it increases a sense of responsibility and Ubuntu."

Middelburg Care Village, which provides a home for vulnerable and orphaned children, received a brand new jungle gym. The students used recycled material to build a new, structurally sound jungle gym.





## EBIT in partnership with BIGEN Africa reach out to KZN learners

On Monday, 4 September 2017, learners from the Msinga rural area in KwaZulu-Natal (KZN) travelled to the University of Pretoria (UP) thanks to the EBIT Faculty and BIGEN Africa. The next day, the Faculty hosted the learners on campus and exposed them to all the EBIT programmes. Ashnee Kara, Group Human Capital Development Manager of BIGEN Africa, stated that their slogan is “doing good while doing business”, and that their engineers have a heart for the community. This is evident in their continued sponsorship of the Faculty, especially EBIT Week.

The learners had the opportunity to visit the University as part of the Maths Clinic, which is an initiative of the South African Youth into Engineering Programme (SAYEP). This programme is steered by Dr Dudu Mkhize, who holds a PhD in Mathematics Education. Dr Mkhize is fondly and widely known for her work in the engineering student environment.

Through SAYEP, these learners are given access to technological and professional careers that require a strong basis in Mathematics and Science, which would otherwise have been impossible. Dr Mkhize proudly stated that, since the start of the SAYEP intervention, these learners’ marks have, on average, improved from 30 to 70%.



Representatives of both the University of Pretoria and BIGEN Africa with the learners from KwaZulu-Natal.

It is encouraging to see how learners from rural areas with limited resources can improve their marks with only a helping hand and a bit of motivation.

These Grade 12 learners were humbled by the experience and look forward to joining UP next year.

Dr Mkhize thanked the Faculty and BIGEN Africa for giving these learners the chance of a lifetime. She said that, although the learners might not easily express their appreciation, she knows that they are appreciative and that this is an experience they will never forget.

## EBIT PhD student honoured at annual Women in Science Awards



Marilize Everts,  
Women in  
Science Awardee

Marilize Everts, a PhD student in the University's Department of Mechanical and Aeronautical Engineering, was recently honoured at the Women in Science Awards for the second time in three years. This year, she was awarded the TATA Africa Scholarship for Women in Science, Engineering and Technology in recognition of her outstanding academic and research performance. She also received this award in 2015.

Marilize obtained her BEng degree in Mechanical Engineering with distinction in 2012. She was not only the top Mechanical Engineering student, but also the top student in the School of Engineering.

At the awards ceremony, Minister of Science and Technology, Naledi Pandor, addressed the attendees, saying that “the Women in Science Awards is a celebration of the achievements of women in science, and is a reminder that the full scientific potential of our country will only be realised when all our young women are able to enjoy access to the best facilities and education. The Women in Science Awards show that women and girls can succeed and excel in science and research.”

The theme for this year's Women in Science Awards was “Women's economic empowerment in the

changing world of work”. This is in line with the theme of the 61st session of the United Nations Commission on the Status of Women held earlier this year.

Marilize's research focuses on single-phase mixed convection of developing flow in the laminar, transitional, low-Reynolds-number end and turbulent flow regimes. This work is fundamental to addressing the gap between laminar and turbulent flow, as well as to understanding the fundamentals of mixed convection. The research will enable engineers to optimise heat transfer equipment used in the generation of energy, which is a major crisis in South Africa. She has submitted five journal articles for publication, presented ten papers at conferences (seven of which were at international conferences) and co-authored a keynote paper with her supervisor, Prof Josua Meyer, Head of the Department of Mechanical and Aeronautical Engineering.

## Youth and leaders in mining and metallurgy meet to shape the future

“Leadership in the mineral sciences industry” was the main topic at the third Young Professionals Council's (YPC) Career and Leadership Conference, organised by the student societies of UP's metallurgical and mining engineering departments earlier this year.

At the event, held at the University of Pretoria's Engineering 3 Building, young people met with leaders in the mining and metallurgy industries to discuss topics shaping the future of these industries. Sponsors included the Southern African Institute of Mining and Metallurgy (SAIMM) and Sanlam.

The objectives of the conference, which takes place on a rotation basis at a different university every year, are to expose students to challenges they may face in leadership in future and to offer them the opportunity to give inputs on leadership within the industry. Networking among future and current leaders is also highlighted. Attendees at

this event agree that they left the conference more informed about the working environment and better prepared to take up the leadership reins in years to come. Dominic Engelbrecht, one of the young organisers from UP, says that “friendships were made and networks created that will benefit all of us going forward”.



Attendees of the YPC Career and Leadership Conference.