Alumni Newsletter

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA

UFS
NATURAL AND AGRICULTURAL SCIENCES
COMPUTER SCIENCE AND INFORMATICS

UFS
ALUMNI

Dear Alumni and Friends

How will you get by without your computer, mobile phone, or tablet today? We can access the world, friends, family, and colleagues at the touch of a button. Digital technology is used worldwide – from the moment you wake up until you go to sleep – through video conferencing, calls, FaceTime, WhatsApp, Skype, and so on.

Telecommunication systems have become an essential part of our society; email and messaging support people to stay connected. Skype video and conference calls, Zoom meetings, and WhatsApp groups via the internet have significantly improved business without interruption, especially during the lockdown period.

Digital technology has brought revolutions to make our lives easier, better, and faster.

Digital technology is crucial in improving social connectivity and communication speed between people and networks. It offers a versatile work style and increases learning opportunities.

Therefore, your contribution is significant in this rapidly growing technological world.

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DR ANELIZE VAN BILJON

Dr Anelize's career at the University of the Free State started in the Department of Education, where she helped with the in-service training of Mathematics, Statistics and Computer Literacy teachers.

She enjoyed this very much at first but longed for a more academic position. She heard that Prof Messerschmidt was looking for a lecturer in the Department of Computer Science. The person who had to present the course did not necessarily need computer training. She contacted Prof Messerschmidt and said she was interested. Prof Messerschmidt knew her, because she did a module and her honours with him.

Her journey in the Department of Computer Science and Informatics started as a junior lecturer. She taught programming subjects from the start, since Prof Pieter Blignaut knew that she was capable and worked hard, but also enjoyed it immensely.

If you are not good enough, you work until you are good enough.   *Dr Anelize's motto in life.*

Initially, the Programming lectures were for first-year students – for which she was thankful, because she also had to sharpen her skills after being involved in Mathematics during the previous years. She enjoyed these classes. She also presented the Web module and said this was a delightful time in her life, for which she is tremendously grateful.

Dr Anelize attended congresses, but never really published computer science articles (in the Faculty of Education she published several mathematics-related articles); she did, however, publish a paper with Prof Eduan Kotzé just before she retired. She considers the position of technical assistant, which has become a permanent position, to be a big plus for the department. Previously, the position was held by honours students who also had to attend to their studies and classes, which sometimes made it difficult for them to fully attend to the labs.

Her field of study was mathematical statistics. She says she likes computer science, especially how she can use computer software and apply it to solve problems and give exciting projects to the students. Still, she has no significant interest in the technical parts of a computer. She says:
"I like to write a program to sort out problems. I like to figure out things."

She also taught computer literacy and programming classes called Python for Grade 7 to 12 learners. Programming, in particular, was high on the list for her. She saw a need where younger children were not exposed enough to computer literacy or programming. There were usually about 30 children attending these classes in the afternoon. Some of the children did very well and have even participated at international level, which made her very proud and thankful.

The students in the Social Studies module helped with the presentation of the classes.

The students found the courses very informative, because they also learned a lot. Unfortunately, only Bloemfontein children were involved in these classes. As Dr Anelize said, she would have liked to include children from all over the Free State, but unfortunately this was impossible.

She was also Head of Department (2010-2013), and during her term she organised speakers to talk to the staff about statistics in the research world, operational research, and forensic computer science. There are very few training institutions that provide training in the forensic field. She launched an activity to get staff members to interact more, namely a photo quiz where staff member had to send photos of themselves when they were little and as school kids. This activity provided great fun among the staff. The head of department position did not involve the role of programme

director. "I was already programme director for undergraduate students before I became Head of Department and continued with that. I think staff members did not always remember that the two 'tasks' were two separate things," she said.
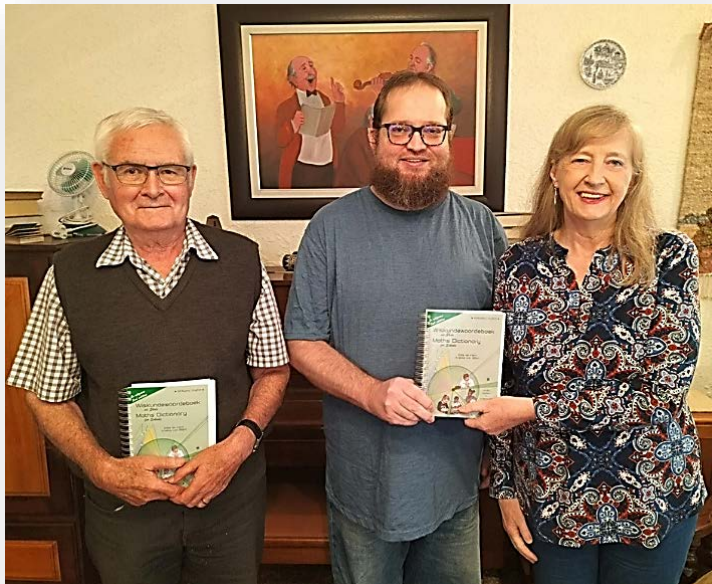
"After my term, I taught honours subjects, namely AI and Algorithms. These students already knew programming, so I had to keep the classes interesting, which I enjoyed very much."
Dr Anelize remembers a few incidents. Students can be very clever at times; she laughs as she recounts an incident where computers were moved by student assistants (demmies) from one venue to the Sasol Lab. Well, some of the computers never reached the Sasol Lab and just disappeared. Prof Blignaut was the head of the department during that incident and had the unenviable task of sorting it out.

A prescribed book is not safe on campus. Another incident that Dr Anelize can remember was when a student's book went missing in class.
There were cameras in the classroom, but they did not work. Dr Anelize then asked the class if any of them might have accidentally packed the book. If so, she would be happy if they would return the book. If the book were not returned, she would be forced to check the cameras to see who took the book (students were blissfully unaware that the cameras were not working).
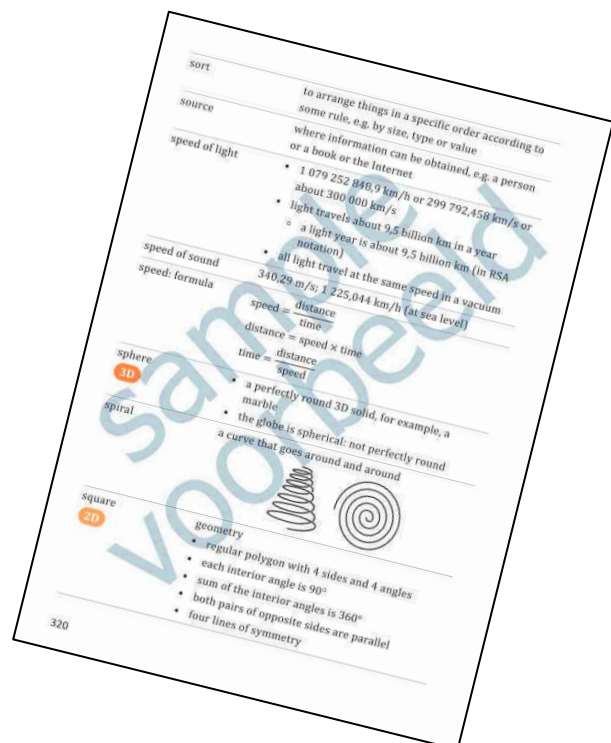The book appeared very quickly and was returned to its rightful owner.

Mr Willem de Klerk, Hannes van Bijon and dr Anelize van Biljon

A few years ago, Dr Anelize was approached by Willie de Klerk to write a preface to the first bilingual *Mathematics Dictionary for Schools*. The book was an excellent initiative, because there is currently no mathematics school dictionary, especially for Afrikaans-speaking kids. The book was in Afrikaans and English.

Because there were some shortcomings in this first book, including a lack of sketches and more significant explanations, Willie and Anelize decided

to work on a new book, which would contain much more detail. It was a tremendous job. Dr Anelize's son, Hannes – a skilful computer boffin – made a 'template' for her and Willie, and all they had to do was type.

The translation from Afrikaans to English took a lot of time, because the meaning had to be the same, the pictures had to look the same, and all entries had to be in alphabetical order. The order is different, with the images done in CorelDraw, which Hannes knows very well; a wonderful mother and son effort completed with great success.

"We tried to release the book as error-free as possible, but a mistake or two might have slipped in, and we would appreciate it if someone found any error that the person could make us aware of it."

For acquaintances, the following exciting news: The head of VivA (Virtuele Instituut vir Afrikaans) told Dr Anelize after a Zoom interview that they would like to publish the book and add it to their collection of dictionaries. VivA works with the North-West University in Potchefstroom, who will contact her.
This Maths dictionary is an excellent asset to our Afrikaans/English school community.
Take a look at the Mathematics Dictionary's website: https://wiskwoordeboek.co.za/.

Hobbies and other

Dr Anelize's hobby or extracurricular activity is Mathematics Olympiads.
She received a trophy for 20 years of service on SAMO's committees for preparing and translating papers; she serves on the senior committee responsible for rounds 1 and 2. SAMO (South African Mathematics Olympiad) organises the national Mathematics Olympiad (consisting of three rounds) every year. This Olympiad started in 1966.
She stated:
"One cannot apply to serve on these committees, so I was asked a long time ago if I would be interested. My path started on the junior committee and later I was asked to serve on the senior committee."

"I wanted to bring it under people's attention that I can also do other stuff and entered KykNet's *Op die Spel* competition and won my round. After 20 years without music lessons since I left school in 1969, I also did the Grade 8 piano examination; one of my students in Windhoek – who studied Music and Mathematics – and I took the duet examination, which was a great experience. One of the lecturers at the Windhoek Conservatory of Music was our teacher."

I would describe Dr Anelize as a strong, passionate, and humble lady. We are excited to hear what will be next on your to-do list, Dr Anelize!

Compiled by Suretha de Klerk

QWA QWA CAMPUS

At the foot of the majestic Drakensberg in the Eastern Free State, we find the vibrant Qwaqwa Campus. The frequent snow on the Drakensberg peaks led the San people to call the region Qwa-Qwa, which means 'whiter than white'.

Since 1 January 2003, the campus has had several international students complete their studies, as well as the rapidly growing number of rural students from the immediate area and surrounding provinces.

Mr B Mase

Lecturer

Mr M Mase is continuing his PhD project, which focuses on exploring how the development of novices' basic programming skills can be advanced using a meta-cognitive scaffolding model.

Mr Gavin Dollman

Lecturer

Mr Gavin Dollman developed a deep-learning-based drone orthomosaic land cover classifier as part of the development of a deep-learning predictive model for the prospecting of new fossil sites in the Elliot Formation in South Africa.
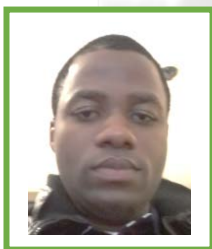
Mr Adebola Musa

Lecturer

Mr Adebola Musa is doing research on information and communication technology (ICT) interventions in the transport sector. His other research interests include recommender systems, machine learning, and artificial neural networks.

Dr Ruth Wario

Senior Lecturer

Dr Ruth Wario's research focuses on human-computer interaction (HCI) and educational technologies. One of her master's students is developing an application to aid in Sign language hand gesture recognition.

Dr Andronicus Akinyelu

Lecturer (newly appointed)

Dr Akinyelu received his BSc (Hons) in Computer Science from the Federal University of Technology, Akure, Nigeria, in 2011. He received his MSc in 2015 and PhD in 2017, both in Computer Science, from the University of KwaZulu-Natal. He did his postdoctoral studies at the University of the Free State between 2018 and 2022. He is currently a lecturer at the University of the Free State. His area of research includes deep learning, machine learning, computer vision, medical imaging, and artificial intelligence.

S T A F F

Lecturer: Dr Ruth Wario

Lecturer: Mr Adebola Musa

Lecturer: Mr Gavin Dollman

Lecturer: Mr Teboho Lesesa

Subject Head: Mr Ben Mase

Lecturer: Mr Benedict Sebastian

Lecturer: Dr Andronicus Akinyelu

Assistant Officer: Ms Matsego Mahakoe

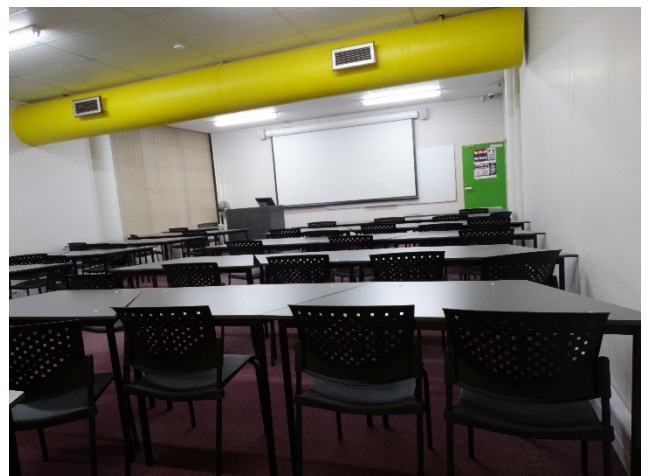Technical Officer: Mr Mandla Makhanya

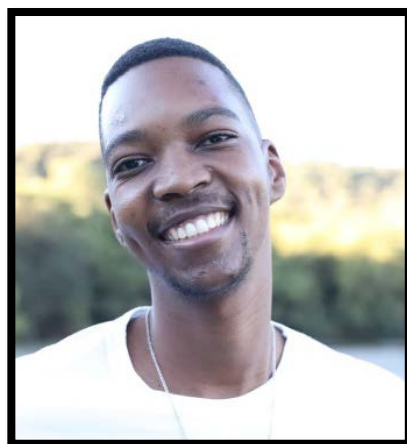
Secretary: Ms Petra van der Merwe

PHOTO COLLAGE

DEPARTMENTAL HIGHLIGHTS

Two students studying in the Department of Computer Science and Informatics – Mr Johandré Bothma and Mr Rudolph Myburg – presented their honours projects at the annual Suid-Afrikaanse Akademie vir Wetenskap en Kuns Student Symposium in Natural Sciences in October 2021. Both projects form part of the Blockchain Technology research group in the department, which focuses on reducing the high energy consumption of the Bitcoin network. Mr Bothma developed a system that can analyse the Bitcoin blockchain and identify appropriate sections (blocks) that can be used to test newly developed blockchain consensus algorithms. Furthermore, his system can generate pseudo-random numbers using data within the Bitcoin blockchain, which is then used with the non-linear Proof-of-Work algorithm developed earlier by the department. Mr Bothma's presentation won one of the prizes in the session where he presented. Mr Myburg developed software that allows the researcher to run mining operations on an isolated Bitcoin network to compare the original Proof-of-Work consensus algorithm of Bitcoin with one of four newly developed non-linear Proof-of-Work algorithms. The data confirmed the findings of the simulations that were done previously, namely that the new algorithms can reduce the Bitcoin network's energy consumption.
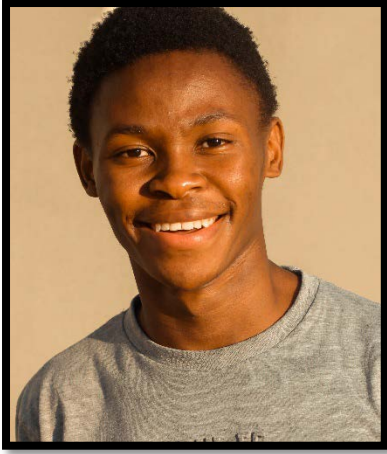

Photo (from the left): Mr Johandré Bothma, Mr Rudolph Myburg, Dr Wynand Nel (supervisor), Mr Rouxan Fouché (co-supervisor).

THAPELO DLAVANE: HONOURS STUDENT

I recently received terrific news from the *FNB Graduate Programme* department, offering me a contract to join one of their business units. I was thrilled and in awe after receiving this news, because I remembered my interview with the manager of the business unit, and it was not a pleasant one. During the first five minutes of the interview, the manager was ready to end the interview due to my lack of knowledge on the tools they use in the department. However, the HR representative insisted that we try to push through, and I also believe that I showed initiative in wanting to continue despite my lack of knowledge about their tools. Several weeks passed without any feedback, and it became evident to me that the interview indeed did not go well. On 9 September 2022, I received a call from the HR representative, and to my surprise, she informed me that I had been successful. I will be joining the team as a junior business intelligence analyst in its Sandton office. I feel very blessed and grateful for this opportunity, and I believe it will be an excellent platform for me to commence the next chapter of my life, which involves building my career to greater heights.

HONOURS

STUDENT

I am **Thabiso Glen Mokoena**, a Bachelor of Computer Information Systems Honours student in 2022. I had the privilege and opportunity to be accepted into the FNB South Africa Graduate Programme for a permanent business analyst role in the FNB organisation, starting January 2023.
After some assessments and a couple of interviews, I received and accepted the offer in September 2022. It was a flurry of emotions when I received the call, mostly of excitement, happiness, and relief, which served as good motivation to finish my honours year strong.
This opportunity allows me to grow as an individual and a professional in my field. I am very excited about the chance to learn new knowledge and contribute my acquired knowledge in a natural world environment.
I would like to thank all my lecturers, undergrad and postgrad, and the entire Department of Computer Science and Informatics (CSI). Generally, the University of the Free State (UFS) is a summation of the immeasurable contribution everybody has made to make me who I am today and who I will be tomorrow. I will forever be an alumnus of the CSI department and the UFS, and as a Kovsie, I will always 'know the feeling'.

News from the UFS Alumni Office

The UFS Alumni Office recently announced the launch of the *Voices from the Free State* podcast series. François van Schalkwyk and Keenan Carelse (UFS alumni leading the United Kingdom Alumni Chapter – the hub of a developing UFS international programme) have put their voices together to create and co-host the new podcast series.

For further information regarding the podcast series, or to propose other alumni guests, please email alumnipodcast@ufs.ac.za.

Please **update your information** on the Alumni website. Go to:

https://www.ufs.ac.za/alumni

Click on the Keep in touch tab and then Update your details
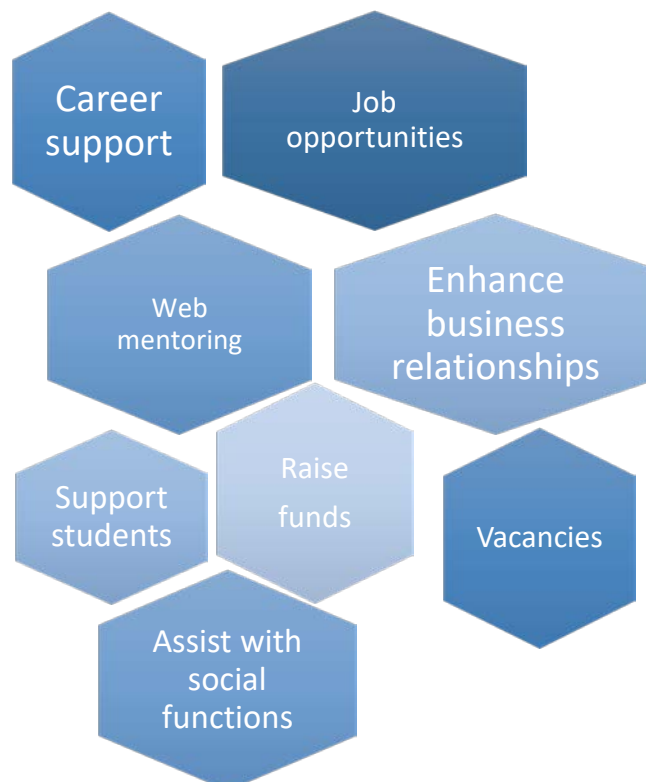
Our Mission

Our mission is to

maintain a lifelong relationship with our alumni; and

facilitate the contributions of our alumni to the advancement and success of the department.

How you can help

Let's stay connected

❖ Tell us your story – where you are and what you are doing

❖ Share your updated email address to receive the latest news

❖ Make suggestions of what to include in the Newsletter

You can send an email to Mrs Suretha de Klerk at deklerks@ufs.ac.za

www.ufs.ac.za/it