

# Starting out on a STEM career

The importance of developing science, technology, engineering and mathematics (STEM) skills in South Africa is widely acknowledged. Here, *Quest* explores two initiatives that aim to help achieve this – one giving graduates an opportunity to gain experience in their field of study, and the other providing learners with a platform to find out more about different careers.

## Data sciences

For the past nine years, analytics leader SAS has been running a technical internship programme that provides graduates with the opportunity to gain workplace learning and experience. The year-long programme encompasses several functions – from consulting, customer advisory and marketing to finance and sales – and the interns can attain specific SAS qualifications to help them further their careers. At the end of the year, every attempt is made to find a placement for each intern, either within SAS or at its customers and partners.

Recently, SAS asked three of its current interns what motivated them to pursue a STEM career and what excites them most about data and analytics.

For Kgopotso Magabjane, a technical intern at SAS, it was a passion for maths at school that led her to study BSc Mathematical Science and then BSc Honours in Science

Statistics at the University of Limpopo. Her honours project opened her eyes to the power of working with data, which in turn led her to pursue her ambition of becoming a data scientist.

Magabjane's view of the importance of data and analytics encapsulates the value of it, as she explains that she believes knowing how to leverage data provides her with legitimate skills in the world. She adds that learning to work with data will empower people to better understand information and make informed decisions. "We live in a digital world, which is why it is hard to find people without a computer or a phone at hand. Everything is now connected, the digital world is growing and the best part about it is that data is engraved in it," she says.

Nkhensani Khoza's path to data and analytics was similar to Magabjane's. She too found her curiosity being stoked by mathematics at a young age, culminating in her attaining a BSc degree with a specialisation in mathematics and applied mathematics from the University of Johannesburg.

"I initially intended to enter into the field of statistics and use my degree to solve business concerns. However, upon being introduced to data science, I soon realised that I could instead use what I was learning to solve real-world problems," she says.



**Kgopotso Magabjane believes data analysis can empower people to make informed decisions.**



**Nkhensani Khoza says working with data and analytics is like searching for hidden treasure.**

Khoza views working with data and analytics as akin to searching for hidden treasure, where the possibilities are endless, and one never knows what one will discover. She explains that it was SAS's leadership in the field of analytics that drew her to apply for an internship. "I knew that if I wanted to be a specialist, then SAS was one of the top companies in South Africa that would provide me with the necessary training I needed to pursue my dream. The company's brand and message of 'We believe curiosity is at the heart of human progress' really spoke to me."

For Shannon Arendse, an intern in the Customer Advisory team, it was the prospect of creating value-added solutions from numbers and data through technology that drew her to data sciences. "I like the idea of being able to transform what most people would call 'nothing' into something valuable," she explains. While she obtained a BSc in Mathematics and Statistical Science for her undergraduate qualification and BSc Honours Statistical Science for her postgraduate degree, she notes that she is creatively inclined, with a love for drawing and painting. For her, creativity is part and parcel of a career in data and analytics.

Arendse was initially intent on pursuing a career in academia majoring in mathematics, but once she explored the capabilities of SAS when doing her honours research project, she discovered that she enjoyed writing programs and coding to answer questions out of curiosity. In her internship, she is being given the necessary skills to code programs more efficiently. "Data and analytics, to me, is the future. It enables us to achieve better results for almost anything and with technology improving every day, it can only get better," she says.



**Shannon Arendse enjoys writing computer programs but loves indulging her creative side too.**

While all three interns have a strong academic background in mathematics, they highlighted curiosity, passion and creativity as primary components in their chosen career path, along with a desire to use data to solve problems. In an era where data is king, they're likely to find their career choice highly fulfilling, knowing they can help make a difference in solving problems.

*Based on a press release by Catlin Hawken of INK&Co for SAS*

## STEMulator

The STEMulator is an interactive exploration platform designed to stimulate learner curiosity in the world of science, technology, engineering and mathematics. Its 'virtual landscape' is crammed with educational content on the built world, living organisms – including the human body – and complex systems such as the water cycle.

The opening image, serving as the main menu, has clickable areas that yield more information on subject-specific layers. Clicking on the Energy area, for example,



Try out the STEMulator at [www.stemulator.org](http://www.stemulator.org).

reveals separate sections on nuclear power, hydropower, coal-fired power stations, wind turbines and photovoltaic energy, each with accompanying text, images, animations and video. Apart from learning about the technology, users can find out about relevant career options, such as electrical or mechanical engineering, and which institutions offer these fields of study.

The STEMulator Car unpacks into various parts, allowing users to explore the workings of an engine or steering system. Other options currently covered include Plane, Satellite, House, Construction, Nature and Agriculture. The STEMulator is still in beta-testing phase, and the development team is looking for contributions to flesh out the content of some areas.

The STEMulator is an initiative of proSET, the membership sector of the National Science and Technology Forum (NSTF). Its 'Chief Instigator', Richard Gundersen, reports that it has been distributed to rural schools on memory sticks called STEM-seeds, and there is another version that can be hosted by an off-line server.

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