

Obituary - Prof Barry Dwolatzky

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Prof Barry Dwolatzky was very proud of the name *Grand Geek* given to him by some former students, but he was much more than a computer geek. He was a leader and a visionary in the field of software engineering in South Africa.

An alumnus of the School of Electrical and Information Engineering at the University of the Witwatersrand, Barry graduated with a BSc Eng (Elec) in 1975. He started with an MSc Eng, which he converted to a PhD.

After obtaining his PhD in 1979, he did post-doctoral research at the University of Manchester's Institute of Science and Technology and at Imperial College in London. Thereafter, he worked as a senior research associate at the GEC-Marconi Centre in the UK.

He returned to South Africa in 1989 as a senior lecturer in the School of Electrical Engineering at Wits University, teaching the Microprocessors course. When he joined the School, there was only one programming course, Engineering Applied Computing, that was taught to second-year electrical, civil and mechanical engineering students. Barry was instrumental in moving away from Pascal, a programming language based on functional decomposition, to C++, an object-oriented programming language. Object-oriented programming is now widely accepted as the better paradigm, but at the time it was a bold step. In the software community around the world, it was hotly debated whether functional decomposition or object-oriented programming was better.

The School of Electrical & Information Engineering's curriculum currently contains two second-year programming courses and a third-year course that is compulsory for all electrical and information engineering students. Barry was instrumental in introducing all these courses. This rigorous training in programming and IT has made the School's students attractive to the IT industry.

Talking to people in various companies, Barry realised that most of the School's graduates went into the ICT sector. He conceived of the idea of introducing a software stream that would be distinct from the electrical engineering stream. In 2000, the School's name was officially changed from School of Electrical Engineering to School of Electrical & Information Engineering. The first two years of study remained the same. In their third year, the information engineering students took courses in telecommunications and data management whereas the electrical engineering students took power and electromagnetic engineering courses. Final

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year information engineering students took a different set of elective courses.

One of Barry's other curriculum innovations was that he introduced a Sociology course called Engineer in Society. This course aligned the Wits electrical engineering program with the requirements of the Washington Accord. The Engineering Council of South Africa (ECSA) is a signatory of the Washington Accord. ECSA is responsible for accrediting engineering programs in South Africa. Being a signatory means that the degrees of graduates of accredited programs are recognised in all Washington Accord countries.

In the late 1980's, the then CEO of ESKOM, South Africa's national electricity utility, announced a mass roll-out of electrification called Electricity for all. Between 1990 and 2000, about 2.5-million houses were connected to the national grid. At that time, Barry started working on a software program that would assist engineers in planning the electrification of townships. A number of postgraduate students under his supervision worked on aspects of this software. He called the program CART (Computer-Aided Reticulation of Townships). In 1997, he took a year-long sabbatical and worked fulltime on CART, developing it into a viable commercial product that was used to aid in the design of the electrification of many townships.

In 2005, Barry launched the Joburg Center for Software Engineering (JCSE). The first director was Rex Van Olst, but in 2007, Barry took over as director. He ran the JCSE until he passed away. It was the work that he did through the JCSE that established him as an important thought leader in the software and IT space. He established a partnership with the Software Engineering Institute (SEI) of the Carnegie Mellon University in the United States. He introduced the SEI's Capability Maturity Model Integration (CMMI), a process improvement model for software development, in South Africa. He raised funding to train CMMI trainers and assessors in South Africa.

The JCSE hosted masterclasses with world renowned software experts, like Kent Beck, the father of Extreme Programming and test-driven development. He also brought one of the early proponents of object-oriented programming, Ivor Jacobsen, to South Africa.

In 2012, Barry identified some derelict buildings in Braamfontein that belonged to Wits University, as an ideal site for an innovation hub. Many people speak fondly of how Barry took them into a derelict disco with only the light from his mobile phone and enthusiastically explained how this was going to be a tech co-working space. He raised a phenomenal amount of funding and transformed the run-down buildings into the innovation hub that is today one of the flagship projects of Wits University. It is called the Tshimologong Digital Innovation Precinct. Tshimologong is the seTswana word for 'place of new beginnings.' Barry was the first director of Tshimologong and he was honoured for this visionary project with the Vice Chancellors Award for Research and Teaching in 2016.

Barry retired at the end of 2017 and was given the title Emeritus Professor, but he kept working as the director of the JCSE.

He was named the IIPITSA (Institute of IT Professionals of South Africa) joint IT Personality of the Year, sharing the award with the head of Microsoft South Africa Mteto Nyathi. In 2016 Barry received IITPSA's award for Distinguished Service to the IT Profession.

During the COVID lockdown in 2020, he started a podcast called *Optimizing – Leading*

Africa's Digital Future and produced 8 episodes. He also wrote an autobiography called *Coded History – My life of new beginnings*, that was launched at Tshimologong in November 2022.

Over the last two years, Barry assisted the Wits Deputy Vice Chancellor, Prof Lynn Morris, to establish the Wits Innovation Center, which was launched on 17 April 2023. A week later, he was admitted to hospital, where he passed away on 25 April, with his wife Rina and his children Leslie and Jodie at his side.



Photo courtesy of the University of the Witwatersrand