NWU Vaal researcher joins the Karlsruhe Institute of Technology in celebrating its 1000th doctorate

NWU Vaal researcher Professor Marelie Davel, Research Professor within the Multilingual Speech Technology (MuST) Research Group, recently had a hand in making history when she took part in the conferring of the 1000th IT doctoral degree at the Karlsruhe Institute of Technology (KIT) in Germany. Prof Davel acted as the co-supervisor of the study in question.

It took the institute several years to reach the four digit number – after having celebrated 900 IT doctoral degrees in January 2013. The first IT PhD was awarded in 1972. Among the people congratulating the graduate, Tim Schlippe, were Prof Dr Tanja Schulz (supervisor) and Prof Dr Marelie H Davel (co-supervisor). The title of his dissertation was: “Rapid Generation of Pronunciation Dictionaries for new Domains and Languages”. He (Schlippe) completed his doctorate degree by performing his research at the Institute for Anthropomatics and Robotics at the Cognitive Systems Lab.

More about KIT

KIT combines the tasks of a university of the state of Baden-Württemberg with those of a research center of the Helmholtz Association in research, teaching, and innovation. The scientific disciplines of the KIT are recognised in five divisions:
Biology, Chemistry, and Process Engineering Informatics, Economics, and Society Mechanical and Electrical Engineering Natural and Built Environment Physics and Mathematics.

These five Divisions are essentially based on the KIT institutes executing research, teaching, and innovation work. Program-oriented research of the Divisions is organized in Helmholtz programmes. The KIT Departments are responsible for university education. At the KIT Centers, scientists are working on division-overlapping research and innovation topics. In this way, interdisciplinary cooperation is supported at the KIT. The KIT Service Units render efficient services to support the actors in research, education, and innovation in fulfilling their key tasks.

In its founding year of 1972 Helmut Hummel was the first graduate to receive a Doctorate at the Faculty of Informatics. Since then the number of graduates has shown a steady increase. The Faculty assigns the degrees Doctor of Natural Sciences and Doctor of Engineering. Traditionally all graduates are bid farewell during festivities held at the end of the summer semester.

More about MuST

Multilingual Speech Technologies (MuST) is a research niche area of the Vaal Triangle Campus of the North-West University (NWU Vaal), consisting mainly of engineers and computer scientists actively involved in speech technology and pattern recognition research. The research group collaborates in various local and international research projects, working with partners and clients from industry, government and NGOs.

At MUST researchers create and apply speech technologies within a multilingual context. They provide a focused, project-oriented learning environment to younger researchers, and provide senior researchers with significant freedom in choosing how they contribute to the group’s activities. Initiated from the Faculty of Economic Sciences and Information Technology, Vaal Triangle Campus, their research activities include a small student presence at the CSIR in Pretoria, as well as a satellite research office in Hermanus, where group members and visiting scientists can spend time away from it all, in an environment that is conducive towards focussed research.

The increasing importance of multilingual speech technology

Computer systems that can listen and speak to humans are becoming more and more common. Such systems answer telephones, provide requested information, type dictated documents, and assist people in many different ways on a daily basis. In the USA alone, several million customers of banks, airlines and search companies are served by speech recognition systems every day. But what if the languages spoken are not English, but rather, one of the 3,000 languages spoken in Africa?

This is where the MuST research group focuses its efforts. They create speech technologies for the less-resourced languages of the world, and try to find new ways of doing this quickly and cost-effectively. In order to be able to build these systems, they have to answer many questions: How can our systems be made to understand the many different accents within a single language? How do people pronounce proper names they have never heard before? How can we capture and understand the essence of a language from a limited set of speech samples? This calls for work at very different levels:

MuST continuously work towards a better understanding of the essence of pattern analysis (learning from data). This work touches on many interesting disciplines, from machine learning to linguistics, and has the potential to impact the world far beyond speech technology. The team builds tools that can be used to collect and analyse samples of a language quickly and effectively. (In collaboration with the CSIR, MuST recently completed the first large data set, containing carefully marked samples in all of South Africa’s 11 official languages). Researchers build and test real-world systems and applications that use speech recognition in practical ways. For example, the team is currently working on

systems that can be used to transcribe lectures in real time, which will hopefully be of great benefit for students in the South African multilingual university environment.

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