

# Industry-academia collaboration empowers next-gen GIS professionals

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Partnerships between industry and academia are essential to bridge the gap between research and the development of products and services. That's what has brought the University of Pretoria's Department of Geography, Geoinformatics and Meteorology and geospatial information science company AfriGIS together in a collaboration that supports industry innovation.



Dr Christel Hansen, senior lecturer, University of Pretoria



Charl Fouché, chief operations officer at AfriGIS



Christopher Ueckermann, data unit manager at AfriGIS

Dr Christel Hansen, senior lecturer in the department, arranged practical workshops for honours students in Advanced Geographic Information Systems. The sessions were led by Charl Fouché, chief operations officer of AfriGIS, who also serves on the advisory committee of the University of Pretoria's Geoinformatics programs, and Christopher Ueckermann, data unit manager at AfriGIS.

“Technical workshops provide hands-on experiences that allow our students to apply theoretical concepts to real-world scenarios,” says Dr Hansen. “It’s a mutual exchange of knowledge and resources that helps to produce graduates who are better equipped with industry-relevant skills and promotes the development of solutions that address everyday problems.”

The first practical workshop took the students through an exercise to create from scratch a routable travel network in QGIS, an open-source geographic information system (GIS). Also known as a road network, this is a digital representation of the interconnected road or transport infrastructure within a geographic area. It consists of a set of interconnected road segments, intersections, and nodes that enable the calculation of travel routes and navigation between locations. It includes the information necessary for accurate routing and directions. And allows users to determine the most efficient and feasible routes for travel based on their preferences and constraints.

“The students were taken through the process of how to do data collection correctly and ensure its integrity,” says Dr Hansen. “This is fundamental to any GIS system and requires a significant amount of planning to get right. There was some frustration in the beginning, but they really appreciated being exposed to Charl and Christopher’s expertise and to have hands-on assistance from them.”

AfriGIS has long had a commitment to invest in skills training programmes through learnerships, support for youth skills development and its own internship programmes. “We believe it is vital to bring together the theoretical and practical aspects of our sector,” says Fouché. “Correct data collection is vital in GIS to ensure accurate analysis, informed decision-making, data integration, collaboration, and long-term data maintenance. It forms the basis for reliable and effective geospatial information and supports the successful implementation of GIS in planning, resource allocation, infrastructure development, and environmental management.”



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A follow-up workshop held at AfriGIS’s premises in Centurion further exposed the students to the real-world application of GIS, as well as AfriGIS’s industry leading software platform, data management system, web-based mapping applications, tools for geospatial analysis and modelling, hardware infrastructure and more. They also had the opportunity to talk to the AfriGIS team.

“The feedback from the students was extremely positive,” says Dr Hansen. “It was an experience that got them thinking about what it means to work in industry, what they can expect from the work environment, and which soft skills they need to develop, topics they are not often exposed to because of time constraints.”

For AfriGIS employees, the experience was equally positive. They have a wealth of knowledge and expertise and are so immersed in their work that they sometimes overlook its broader significance and how they are making a difference.

“Recognising the importance of their contributions and the value they bring to their profession helps our people to stay motivated, engaged, and committed to what we do,” says Fouché. “We look forward to continuing our collaboration with the university and playing our part in bringing together diverse expertise and promoting the development of the GIS industry in South Africa.”

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