5 March 2019

New low-cost technology to reduce risk of shark attacks

After 15 years of using trained observers (spotters) to successfully reduce the risk of shark bites in Cape Town, a new project has been launched to develop a low-cost, computer vision-based, automatic, shark detection algorithm to be used on fixed cameras above Cape Town's beaches.

The Institute for Communities and Wildlife in Africa (iCWild) at the University of Cape Town (UCT) has launched the project with the Shark Spotters programme – in collaboration with the PatternLab SaRL (a research and development company specialising in data science and computer vision from Switzerland).

The Shark Spotters programme, funded by the City of Cape Town and Save Our Seas Foundation, has significantly improved water-user safety at its operating beaches in Cape Town, recording over 2 500 shark sightings since its inception in 2004. The development of the automated shark spotting system will build upon this strong foundation and help to overcome some of the limitations the programme currently experiences, including the need for natural elevation (mountains) and the potential for human fatigue and error.

Professor Justin O'Riain, director of iCWild at UCT: "Sharks Spotters is an excellent example of a non-lethal solution to mitigating conflict between people and Wildlife. In essence, the ocean user community give way to sharks as they go about their natural lives and this allows both people and a large apex predator to share the coastline. It is our goal to improve upon the current system using technology so that the system can be applied more broadly in South Africa."

Field work for the project has begun on Fish Hoek beach and involves collecting footage of sharks for analysis and development of the cutting-edge, detection-algorithm software. While footage of live sharks is collected where possible, a decoy shark is also being used due to the sporadic and unreliable nature of shark sightings. Environmental and experimental variables are recorded during the data collection to assess their impact on the ability of the software to detect sharks and to compare to the effectiveness of the current human-based spotting system in place. The automated system will not replace the spotters employed in Cape Town but assist them in more reliable and accurate detection of sharks.

"Shark Spotters has been at the forefront of sustainable shark-bite mitigation measures worldwide since it started in 2004. We are excited by the new possibilities that this

automated shark spotting research project presents and hope it will result in a system that enhances shark safety at many more beaches in the Cape metropole," said the City's mayoral committee member for spatial planning and environment, Alderman Marian Nieuwoudt.

The research project will run for 18 months after which it is anticipated an effective automated shark-spotting system will have been developed for use in Cape Town and beyond.

In South Africa, the funding for Shark Spotters and UCT is administered via the Department of Science and Technology (DST), while PatternLab's involvement is financed by Innosuisse, the Swiss counterpart of DST. The Automated Shark Spotting project is the first project funded by the DST under the Eurostars Programme.

[Download high-resolution picture](#)

ENDS

Issued by: UCT Communication and Marketing Department

Angelique Botha
Media Liaison and Monitoring Assistant
Communication and Marketing Department
University of Cape Town
Rondebosch
Tel: +27 (21) 650 2583
Cell: +27 (64) 276 6234
Email: angelique.botha@uct.ac.za
Website: www.uct.ac.za