GEODELTA

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3D Reconstruction of Olympic Dinghy Sail Shapes

Real time high accuracy shape reconstruction using photogrammetry: the digital telltales.

Context

In order to determine the optimal air flow, reconstruction of the flying sail shape is crucial in sailing races. This so-called trimming is a profession which requires years of experience. To do this, the sailor observes the sail with the naked eye, using stripes and little cords on the sail. These cords are called telltales. We want to replace these old analogue methods with an automated method that determines and visualizes the flying sail shape in real time. We call this new approach the digital telltales.

What you will do

At this stage we are exploring the feasibility of a new approach for measuring the shape of Olympic Dinghy sails. You will participate in our project on three topics:

- Data collection (onshore and offshore),
- Research into the best methodology for sail reconstruction,
- Validation of the results by implementing a software prototype.

During your thesis you will address various aspects such as number of reference points, automatic detection, pattern recognition, scale and dense matching. All of this should work in real time under the harsh offshore conditions with limited compute power on board an Olympic sail dinghy. To do this, you will extend the existing software for close range photogrammetry which was developed by Geodelta.

What we offer

A challenging and innovative project on the edge of technology and top sport. You will work from the office of Geodelta, which is based in the city center of Delft. Geodelta is a small company specialized in developing software for accurate measurements from images. The project is in close cooperation with a Dutch world champion in sailing, the Sailing Innovation Centre in Scheveningen and Delft University of Technology.

Geodelta offers a monthly internship compensation for the duration of your project. The tests for this project will happen in the spring and summer of 2019.

More information

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