

## Master's Thesis

**Anticipated start:** From August/September 2024

**Duration:** Minimum 6 months

**Location:** Wetsus Research Center, Leeuwarden, the Netherlands

## Motivation

Minimizing fluid drag is essential for diverse engineering applications, particularly in channel flow and water transport pipeline systems. The motivation for this research project is to develop low-resistance pipes, which would save energy by lowering the required pumping power to transport water.

## Opportunities for Master's Theses :

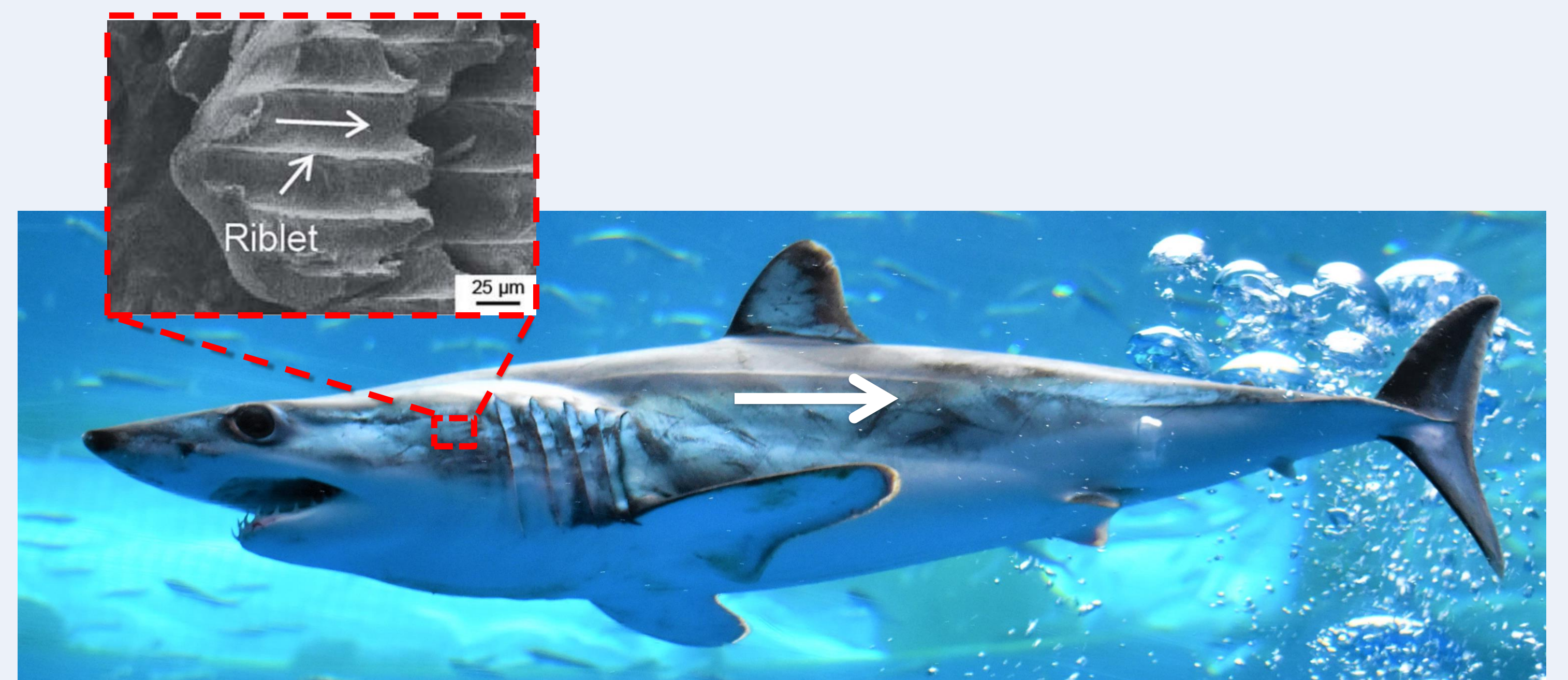
As a prospective candidate, your responsibilities would encompass:

- Making a Flow Visualization Setup: To establish a robust flow visualization setup, we will consider but not limited to both Particle Image Velocimetry (PIV) and Particle Tracking methods as strong candidates. The final decision on the optimal experimental flow visualization method will be made collaboratively. This process will include setting up the optical and laser systems, as well as the laser sheet, within our state-of-the-art laser laboratory.
- The setup is needed for characterization of turbulent flow within the channel and exploration of the mechanisms involved in drag reduction

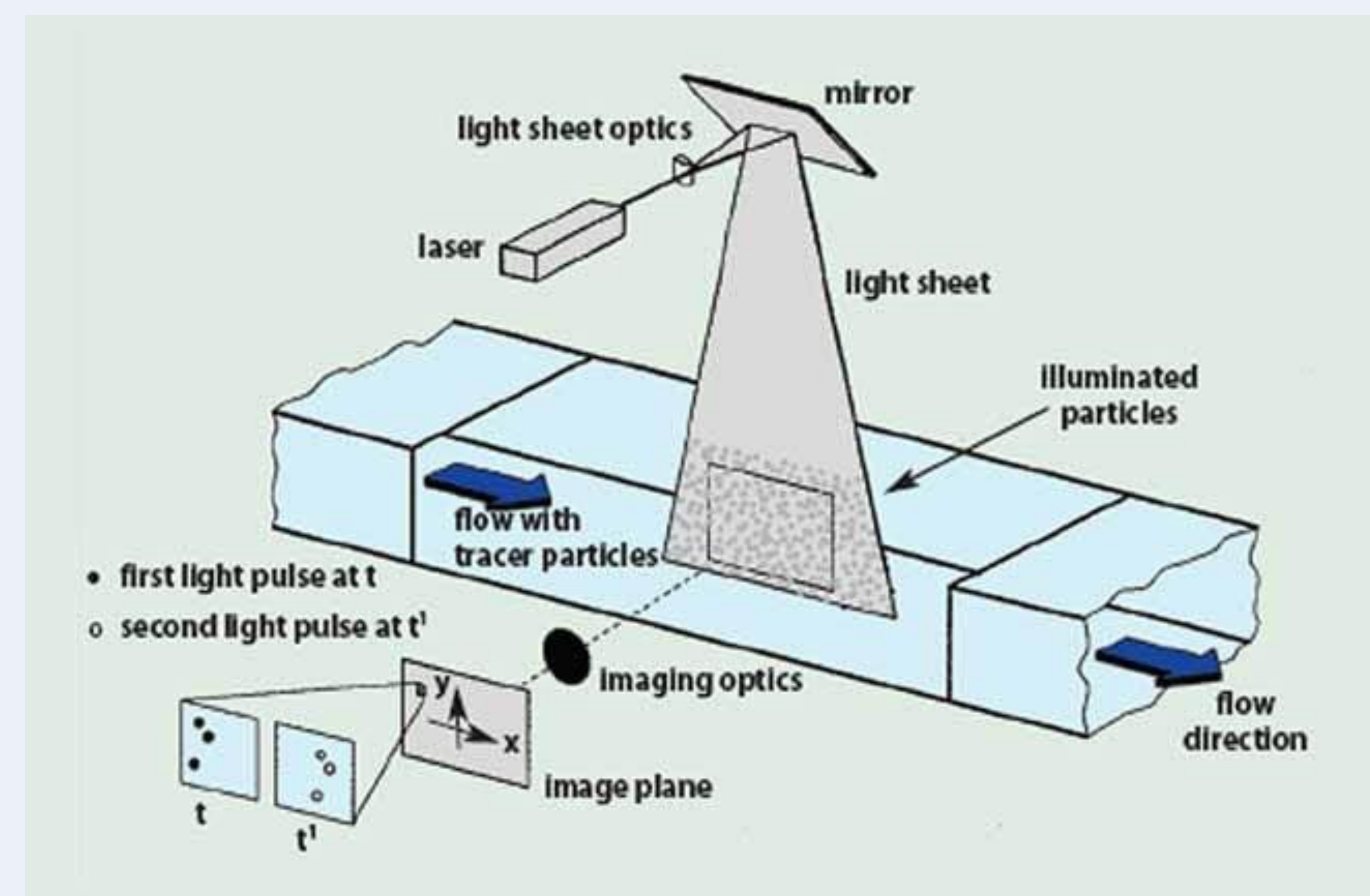
## Qualifications:

We are seeking people who:

- Possess interest in optical flow measurement methods, especially PIV or PT.
- Are fluent in written and spoken English.
- Have interest to work in a high-tech laboratory.
- Have a background in Engineering, Physics, or a related field.
- Are either EU citizens or non-EU citizens already enrolled in a Dutch university and residing in the Netherlands.



**Figure 1.** Digital photo of a Shortfin Mako Shark and magnified images of shark skin representing riblets.



**Figure 2.** Experimental arrangement for PIV in a wind tunnel ([www.photonics.com](http://www.photonics.com))

## Benefits of Joining:

- By becoming a part of our team, you will:
- Acquire valuable hands-on experience with cutting-edge laboratory equipment..
- Collaborate with colleagues from diverse cultural backgrounds in an advanced laboratory setting.
- Depending on circumstances, you receive a monthly allowance ranging from €200 to €400

## How to Apply:

If you are interested in this exciting opportunity, please send an email to [mche@wetsus.nl](mailto:mche@wetsus.nl) to initiate contact. Ensure to attach an updated CV and provide a detailed explanation of your interest in contributing to this project.