

## **Abstract**

This paper first describes the theory behind sailing. Since windvanes are mostly being used on board sailing yachts with the purpose of making sailing easier, I thought sailing should be implemented in my paper. After this, the history and development of windvanes through time are discussed and how they specifically function. The most important improvements are also mentioned.

Later on, two main systems emerged from these first windvanes: The servo-pendulum and the auxiliary rudder system. I analyzed these two extensively and compared them with each other. In global, the Hydrovane (the most popular auxiliary rudder windvane) comes out best since it can also be used as emergency rudder. This advantage also comes with a higher price.

As an extension to the paper for my master, I had the goal to test if it was possible to build my own version of the Hydrovane. The characteristics of the Hydrovane are described more in detail here.

I would build this Hydrovane in scale and afterwards test the characteristics. By adapting this design multiple times, I was able to create a relatively good working version.

Windvanes, and specifically the Hydrovane, are rising in popularity I think they will be applied in more and more sectors. In the future they could maybe even be used on lifeboats or on new windships. With the help of a small sail (or rescue kite) and a Hydrovane, a lifeboat could cover quite a distance on its own while navigating more comfortably in severe weather.