UNIVERSITÄT ZU LÜBECK
INSTITUT FÜR ROBOTIK
UND KOGNITIVE SYSTEME

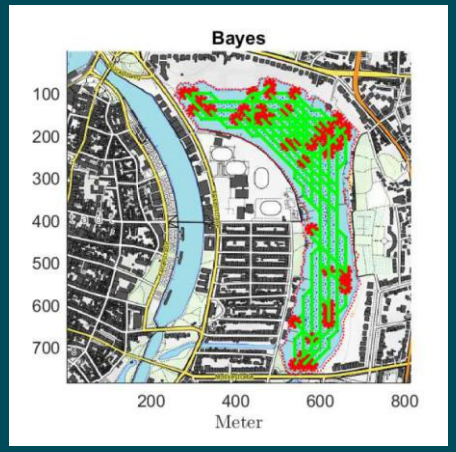
Institute for Robotics and Cognitive Systems

Bachelor's / Master's Thesis
Fast Contamination Estimation for low-cost ASVs

Fast detection of chemical contaminants in water, such as oil, is key for in-time reaction to preserve the sensitive habitat of the animal and plant world. Therefore, cheap and effective autonomous surface vehicles (ASVs) can be used to collect data, estimate the water contamination and search for the origin of the pollution. These small devices can be easily integrated in the general workflow of fire brigades, since they are robust and no special training for usage is required. However, there are still open problems on how to efficiently adapt existing field estimation and path planning strategies on such low-cost systems.

Tasks

You will develop ideas for adapting and deploying field estimation and path planning strategies, e.g. Gaussian Processes and Bayesian Optimization, to low-cost systems. Moreover, you will test these algorithms onto a real low-cost ASV and evaluate the performance of your algorithms.



Qualification

- Mathematical skills, willingness to work in a team
- Interest in Estimation Techniques (Gaussian Processes) and Planning Strategies
- Programming skills (Matlab, C++, ROS)

Interested? Contact Nils Rottmann at rottmann@rob.uni-luebeck.de or Ralf Bruder at bruder@rob.uni-luebeck.de!

IM FOCUS DAS LEBEN