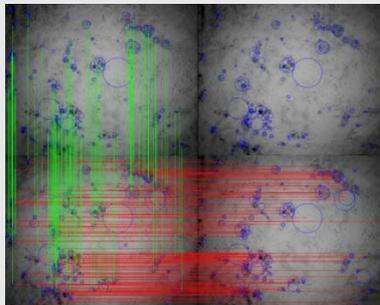# Eurofleets 2

## Towards an Alliance of European Research Fleets and Maritime Equipment



*AUV DAGON inside the large test basin of the DFKI Maritime Exploration Hall*



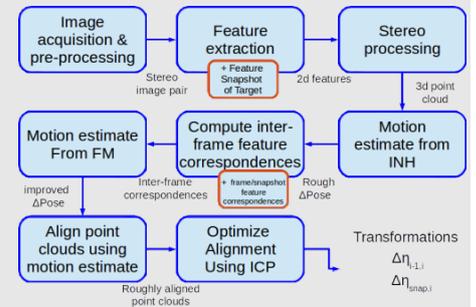*Stereo- and Interframe Feature Matching on seafloor images*



*Image and Algorithm Processing Pipeline*

### Optical-based dynamic positioning and target following for hovering autonomous underwater vehicles (AUVs)

As part of the Joint Research Activities (JRA) inside the Eurofleets 2 project, the DFKI Robotics Innovation Center (RIC) is developing, implementing and testing concepts for optical-based dynamic positioning and target following for AUVs.

This task is related to the design and implementation of hovering and dynamic positioning algorithms, which takes data from external sensors like 3D cameras and/or multi-beam sonars, implements a feature detector on this data, tracks the features in space and then applies sensor fusion with the navigation data to generate motion commands for target related position keeping. The feature selection can be automatic in simple dynamic positioning mode or assisted by an operator. The objective is to maintain precise position relative to mobile or fixed target using Robust DP algorithms mainly using 3D HD data.

The developed algorithms will be implemented and tested on the hybrid AUV DAGON, developed at the Robotics Innovation Center.

### Eurofleets Background

Eurofleets 2 is the continuation and enhancement of Eurofleets, with the aim of developing a new pan-European distributed infrastructure with common strategic vision and coordinated access to European research vessels and marine equipment.

Eurofleets 2 will undertake specific actions that aim to consolidate fleets organization, methodology and tools and through operational experimental tests (like virtual fleets) leading to fully interoperable and cost effective European research fleet.

Duration: 04/2013 – 06/2017

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