Objective

Context

In the field of Explosive Ordnance Disposal (EOD), robots are used to safely dismantle suspicious objects. These robots are navigated remotely (either wirelessly or wired) by a human operator who controls the robot actuators based on a 2D video stream from a camera on the robot.

DOVO operators currently struggle with the non-intuitive user interface on such systems, which lacks situational awareness. The operation process is difficult and as a consequence imposes continuous training for experts. In this project, we want to help EOD operators by creating an augmented 3D reconstruction of the scene which provides useful context and 3D awareness during robot operation.

The goal is to create a multi-spectral sensor TRL5 demonstrator that can be mounted on a DOVO EOD robot.



Methodology

Revolutionizing the User Experience of Explosive Ordnance Disposal Robotics Operators with Augmented 3D Awareness

We will perform multi-spectral 3D reconstruction of the minefield around the robot. Using VR goggles, the operator can more easily take in all the information and operate the robot. Multi-spectral images can provide interesting indicators to the operator, but they can only monitor a limited set of spectra at the same time.

So, to reduce the cognitive load for the operator, we will use AI to localise regions in specific spectra which contain useful information that is not obvious from the visible spectrum.





Ken Hasselmann Promotor (MECA)



Charles Hamesse Co-promotor (MWMW)



InterModalics

Partners



Trace



DOVO/SEDEE



Marnix Enting Researcher (MECA)