

# Stereo Vision-based Autonomous Navigation for Oil and Gas Pressure Vessel Inspection Using a Low-cost UAV

Leijian Yu, Erfu Yang, Beiya Yang, Andrew Loeliger and Zixiang Fei

Department of Design, Manufacturing and Engineering Management,  
University of Strathclyde, United Kingdom

- The ORB-SLAM3 is improved by the image contrast enhancement capability.
- A stereo vision-based autonomous navigation approach is developed.
- The ROS-Gazebo-PX4 simulator is customised deeply to simulate the real scenario.
- The effectiveness of the proposed approach is demonstrated in the developed simulation environment.

