Informatics engineering with the focus on process automation, including object recognition and machine vision (contact person for further details dr. Mindaugas Kurmis, e-mail: mindaugas.kurmis@ku.lt).

General information: the fellowship is provided for postdoctoral researchers in shipbuilding engineering and informatics engineering within the Faculty of Marine Technologies and Natural Sciences, Klaipėda University in close collaboration with the Western Shipyard BLRT Group (https://wsy.lt/en/).

Description: Informatics engineering with the focus on process automation, including object recognition and machine vision. Automation technology has been widely adopted in various industries to improve efficiency and accuracy while reducing costs. In the shipbuilding industry, the production of ship piping systems is a complex and labor-intensive process that requires significant manual involvement. The use of automation technology, such as robotic lines and computer vision, has the potential to increase the efficiency and accuracy of ship piping system production while also reducing costs. Current research in the field of automation technology for ship piping system production has mainly focused on the development of robotic systems for welding and cutting operations. These studies have shown that the use of robots in ship piping system production can lead to increased productivity and improved quality of the final product. However, there is limited research on the integration of computer vision in ship piping system production. Computer vision has the potential to improve the accuracy and efficiency of robotic systems by allowing them to detect and correct errors in real-time.

Despite the potential benefits of automation technology in ship piping system production, there are several uncertainties that need to be addressed. One of the main challenges is the high initial cost of implementation. The cost of purchasing and maintaining robotic systems and computer vision equipment can be significant, and hinder investments in this technology without a clear understanding of the potential return. Additionally, there is the need to develop efficient and reliable software that can be integrated into the robotic systems and computer vision equipment to control and monitor the production process. The main aim of this postodoctoral felowship is to investigate the potential of using robotic lines and computer vision for automating the production of ship piping systems, in order to improve efficiency, accuracy, and reduce costs in the shipbuilding industry. This research will involve a combination of literature review, case studies, and experimentation. A literature review will be conducted to gather information on current automation technology and its potential applications in ship piping system production. Case studies of companies that have implemented robotic lines and computer vision in their production processes will be analyzed to gather information on the benefits and challenges of such implementation. Finally, experimentation will be conducted to test the integration of robotic lines and computer vision in a simulated ship piping system production environment.