

**Candidate:** Nicole Catherine Taylor

**Title:** A human cyber-physical system to study the motion sickness of seafarers

**Synopsis:** A novel concept, called Mariner 4.0, was developed to encourage equipping seafarers with virtual counterparts to support people on ships. A Mariner 4.0 platform comprised of software and physical elements was implemented and trialled in a real-world case study. A real-time representation of motion sickness that seafarers were experiencing was digitally captured through a custom-developed application and a shipboard measurement system. Real-time analysis of the data extracted novel diagnostic criteria as guidelines for estimating motion sickness incidence. The Mariner 4.0 platform served as a monitoring tool and a research instrument that advanced the understanding of motion sickness on board ships.