AUTONOMOUS VESSEL PATH FOLLOWING AND COLLISION AVOIDANCE

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In this paper we propose a method to solve the problem of autonomous vessel navigation in highly uncertain conditions. The primary goal was to make the Reinforcement Learning agent to learn the policy allowing the AV to follow a certain path while avoid collisions with any other objects. Maneuvering of AV in the proposed conditions is the principal subject of this paper. Several scenarios were explored during the research with static and dynamic objects. The agent was trained with model free off-policy algorithms. The training process was divided in several parts where we were experimenting with meta-learning approach elements to achieve the robustness of the agent behavior.

Keywords: path following, maneuvering, machine learning, reinforcement learning, model free, obstacle avoidance.

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