

Abstract

Amerongen, J. van, H.R. van Nauta Lemke and J.C.T. van der Veen, "An autopilot for ships designed with fuzzy sets", Proceedings 5th IFAC/IFIP Conference on Digital Computer Applications to Process, Control, The Hague, The Netherlands, 1977

For the design the steering behaviour of a human controller is translated into a fuzzy mathematical model. The complexity of this model requires a digital computer for implementation of the autopilot. The steering problem is split up into two regions with different control algorithms, a manoeuvring or course-changing mode and a course-keeping mode. Fuzzy sets are used also in the formulation of a fuzzy performance index that is based on human appreciation of the steering. The results are tested on a simulator, and a comparison is made between the fuzzy and a conventional PID controller which is most commonly used in autopilots