

Final Thesis

„Health- and Energy-aware control of boats with electric propulsion“

(in cooperation with UFAM)

Topic Description:

River transport is the main alternative for most communities in the Amazon river basin and its subsistence is extremely important for these communities and for the preservation of the Amazonian ecosystems. However, the boats currently used in the region consume a lot of fossil fuel, which burdens these communities and releases large amounts of polluting gases. It motivates the development of efficient technologies for electric propulsion of those vessels. In this regard, the e-Controls team from the Federal University of Amazonas (UFAM) is investigating control strategies for those boats which can consider both the degradation state of the boat components, in particular the energy storage systems, and their state of charge.

Tasks:

- High-fidelity simulation of boats with electric propulsion
- Design of input-dependent predictors for the health indices for the energy storage systems
- Development of economic model predictive control algorithms for electric boats considering the SoC and the degradation
- Writing of technical reports

Your Profile:

- Study of Electrical, Computer, Industrial, or Control Engineering
- Interested in control systems methods
- Willingness to cooperate and travel internationally
- Fluent in written and spoken English language
- Confident use of MS Office

Are you interested? Please contact us!

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