

Contents

Part I: Collision Avoidance and Route Planning

Tracking Objects Using PHD Filter for USV Autonomous Capabilities	3
<i>Oren Gal, Eran Zeitouni</i>	
Feasibility of Basic Visual Navigation for Small Robotic Sailboats	13
<i>Tobias Neumann, Alexander Schlaefer</i>	
Optimization-Based Weather Routing for Sailboats	23
<i>Jorge Cabrera-Gómez, José Isern-González, Daniel Hernández-Sosa, Antonio Carlos Domínguez-Brito, Enrique Fernández-Perdomo</i>	

Part II: Extended Field Tests

Data Mining for Optimal Sail and Rudder Control of Small Robotic Sailboats	37
<i>Lars Hertel, Alexander Schlaefer</i>	
Continuous Improvements to USNA SailBots for Inshore Racing and Offshore Voyaging	49
<i>Paul H. Miller, Matt Hamlet, Jeff Rossman</i>	
Human-Computer Interface for Doğuş Unmanned Sea Vehicle	61
<i>Samet Batı, Hamdi Atacan Oğul, Cengiz Karaçizmeli, Dilek (Bilgin) Tükel</i>	
An Experimental Validation of a Robust Controller with the VAIMOS Autonomous Sailboat	73
<i>Fabrice Le Bars, Luc Jaulin</i>	

Part III: Controller, Sensor and Rig Design

**A Study on Potential Energy Savings by the Use of a Balanced Rig
on a Robotic Sailing Boat** 87
Roland Stelzer, Daniel Estarriola Dalmau

**Small and Inexpensive Single-Board Computer for Autonomous
Sailboat Control** 95
Mariano Alvira, Taylor Barton

A Simple Controller for Line Following of Sailboats 107
Luc Jaulin, Fabrice Le Bars

Author Index 121