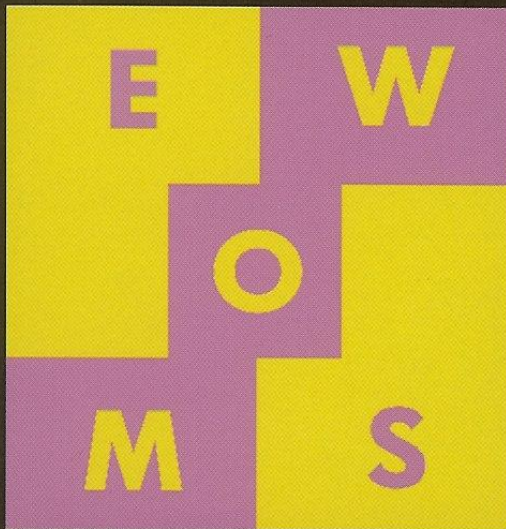


ABSTRACTS

# EWOMS'09

European Workshop on Movement Science



*editors*

Duarte Araújo  
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*f* **MH** edições  
Um Corpo de Conhecimentos

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## Control optimization of a robotic bird

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In this paper it is studied the modeling and control of a robotic bird. The results are positive for the design and construction of flying robots and a new generation of airplanes developed to the similarity of flying animals.

Once implemented the dynamic models studied, we will study different movement planning routines and the dynamic stability to adopt. The development of computational simulation based on the dynamic of the robotic bird should allow testing strategies and different algorithms of control such as integer and fractional controllers.

It is studied different kind of optimization algorithms in order to achieve the best algorithm of control to use in our model. We compare the Gradient Descent optimization method to the PSO algorithm presenting some time response parameters of our system under the action of different controllers.

Firstly, we provide an overview of the system model; secondly, we compare the behaviour of fractional and integer order controllers using different algorithm for the controller optimization in order to obtain the minimum error.

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ISBN 978 972 735 164 0