

# Dissertação de Mestrado em Engenharia Informática (2018/2019)

**Title:** Bio-inspired approaches for software defect prediction

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## Summary

Software defect prediction (SDP) technique was proposed to help to allocate testing resources reasonably, determine the testing priority of different software modules, and improve software quality. By using the results of SDP, software practitioners can efficiently judge that which software modules are more likely to be defective, the possible number of defects in a module, or other information related to software defects before software testing [1]. On the other hand, bio-inspired algorithms focus on the design of models based on biological mechanisms combining concepts of computer science, biology and mathematics, in order to solve real-life problems and challenges. The present topic focuses on dealing with applying bio-inspired algorithms for software defect prediction aiming at to provide an accurate and timely tool for software practitioners.

## Tasks

- T1 – Technological background study;
- T2 – Review the State-of-the-art;
- T3 – Requirements Analysis;
- T4 – Design and construction, including integration;
- T5 – Testing and evaluation;
- T6 – The writing of the dissertation.

## Expected result

In this research work the following deliverables are expected:

- A validated computational tool for software defect prediction;
- A publication describing the method and the validation results.

## Timeline

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
T1	X	X	X						
T2		X	X	X					
T3			X	X					
T4				X	X	X			
T5						X	X	X	
T6					X	X	X	X	X

## References:

1. Tong H., Liu B., Wang S., Software defect prediction using stacked denoising autoencoders and two-stage ensemble learning in *Information and Software Technology*, 96, 2018, 94:111.