

# **Dissertação de Mestrado em Engenharia Informática (2019/2020)**

**Title:** Predictive algorithm for behavioural changes in diabetes self-management.

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## **Summary**

Diabetes mellitus is a challenging chronic disease for patients, health professionals, caregivers and scientific community. It starts by changing the diabetics lifestyle, leading the person to develop their autonomy to manage the control of blood glucose levels, gaining healthy habits such as a balanced diet, regular physical activity, and adherence to insulin needs. To identify the needs and expectations of people with diabetes, it is necessary to analyse the promotion of health in the perspective of autonomy, considering respect for the individualization of people with diabetes and their role in controlling the disease. It is crucial to know the lifestyle and changes that occur, hence a collection of contextual data over time is essential so that health professionals can respond to these needs and expectations.

The existence of predictive algorithms for the discovery of personalised knowledge that can predict changes in their health status is an essential aspect of this proposal. The extraction of new medical knowledge regarding the correlation and similarity of the data is involved in the clinical manifestations and complications of diabetes. This dissertation will consist of the implementation of a predictive algorithm using machine learning for a behavioural change intervention in diabetes self-management context.

## **Tasks**

- T1 – Intervention background study;
- T2 – Review the State-of-the-art;
- T3 – Framework design and construction;
- T4 – Testing and evaluation;
- T5 – The writing of the dissertation.

## **Expected result**

In this research work the following deliverables are expected:

- A validated predictive algorithm;
- 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	X	X			
T4					X	X	X		
T5							X	X	

## References:

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- [2] Sousa, P., Felizardo, V., Oliveira, D., Couto, R. and Garcia, N.M. A review of thermal methods and technologies for diabetic foot assessment. *Expert review of medical devices*, 12(4), pp.439-448, 2015.
- [2] H. Akbar, D. Anderson, and D. Gallegos, "Predicting intentions and behaviours in populations with or at-risk of diabetes: A systematic review," *Preventive Medicine Reports*, vol. 2. pp. 270–282, 2015.
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