

# Bachelor Thesis Review

Faculty of Mathematics and Physics, Charles University

**Thesis author** Glejdis Shkëmbi  
**Thesis title** Machine Learning Tools for Diagnosis of Heart Arrhythmia  
**Year submitted** 2020  
**Study program** Computer Science  
**Study branch** General Computer Science

**Review author** Marta Vomlelová Advisor  
**Department** Department of Theoretical Computer Science and Mathematical Logic

Overall	good	OK	poor	insufficient
Assignment difficulty		X		
Assignment fulfilled		X		
Total size <i>... text and code, overall workload</i>		X		

Thesis Text	good	OK	poor	insufficient
Form <i>... language, typography, references</i>	X			
Structure <i>... context, goals, analysis, design, evaluation, level of detail</i>		X		
Problem analysis	X			
Developer documentation		X		
User Documentation		X		
<p>The thesis reviews recent papers on the analysis of the BIH-Arrhythmia database and repeats them in a simplified version. It includes introduction to ECG signal analysis and the machine learning. The focus is on the DWT preprocessing that is used in all recent papers. The implementation contains data preprocessing (train/test data selection, DWT, feature calculation) and different Machine learning models are trained and evaluated. The code is provided to enable the checking of the results, not as a standalone application. Basic documentation is attached to the code.</p>				

**Thesis Code**

good    OK    poor    insufficient

Design <i>... architecture, algorithms, data structures, used technologies</i>		X		
Implementation <i>... naming conventions, formatting, comments, testing</i>			X	
Stability		X		

The core of the thesis is the evaluation of machine learning approaches. The code is provided to enable the checking of the results, not as a standalone application.

The algorithm selection is good. The code is not optimized for easy readability nor speed. It runs all required experiments and provides results for the method and algorithm evaluation.

**Overall grade**    Excellent  
**Award level thesis**    No

Date 30.6.2020

Signature