Software Requirements Engineering through Machine Learning Techniques: A Literature Review

3 authors:

Maria Guadalupe Gramajo
National University of Technology

6 PUBLICATIONS   **4** CITATIONS

SEE PROFILE

Luciana C. Ballejos
National University of Technology

24 PUBLICATIONS   **263** CITATIONS

SEE PROFILE

Mariel Alejandra Ale
National University of Technology

20 PUBLICATIONS   **105** CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:

Conceptual model for the development of competency-based curriculum generation systems in engineering careers View project

Gestión de dependencias en la nube: Una propuesta eficiente para Java View project

Systematic Mapping of Machine Learning Techniques applied in Software Engineering Processes

María Guadalupe Gramajo
CIDISI - Centro de Investigación y Desarrollo de Ingeniería en Sistemas de Información
Universidad Tecnológica Nacional
Facultad Regional Santa Fe
mgramajo@frsf.utn.edu.ar

Luciana C. Ballejos
CIDISI - Centro de Investigación y Desarrollo de Ingeniería en Sistemas de Información
Universidad Tecnológica Nacional
Facultad Regional Santa Fe
lballejo@frsf.utn.edu.ar

Mariel A. Ale
CIDISI - Centro de Investigación y Desarrollo de Ingeniería en Sistemas de Información
Universidad Tecnológica Nacional
Facultad Regional Santa Fe
male@frsf.utn.edu.ar

ABSTRACT

In recent years, Machine Learning (ML) has shown the potential for developing better software tools and products, allowing to address the various activities involved in software processes and problems that arise during the phases of its life cycle. Recently, numerous investigations have provided encouraging results in the application of ML approaches in Software Engineering (SE) for resolving traditional problems, such as the detection of software failures, requirements prioritization, classification and quality evaluation, among others, which have generated a growing interest in investigating even more into its usefulness and uses in the area. In this work, a systematic mapping of the literature (SML) is carried out by the authors to identify and analyze the proposals and academic researches carried out in the area of SE using ML supervised techniques to provide support in diverse activities of the software processes. Because of the application of specific inclusion and exclusion criteria, which are explained, 33 articles related to the topic were selected. Based on the research questions formulated, this study identifies a strong trend towards the application of ML techniques in activities related to software requirements management and testing. In particular, the support vector machine (SVM) algorithm has the highest incidence in software activities and processes.

KEYWORDS: Machine Learning, Supervised Learning, Software Engineering, Software Processes, Systematic Mapping.