Identifying Survival-Changing Patterns for Employee Attrition Analysis

Youssef Oubelmouh∗1,2, Frédéric Fargon‡2, Cyril De Runz§1, Arnaud Soulet¶1, and Cyril Veillon¶2

1Laboratoire d’Informatique Fondamentale et Appliquée de Tours – Université de Tours : EA6300, Université de Tours – France
2Devoteam – Devoteam – France

Résumé

Employee attrition is a pervasive problem for many organizations, and reducing it has become a key goal in the business world. Although there is a substantial body of literature on predicting customer attrition, the literature on employee attrition is comparatively limited. Moreover, even studies that do address employee attrition often fail to consider the impact of time and duration on attrition rates. In this context, the present paper aims to fill this gap in the literature by combining frequent pattern mining in sequences of events and survival analysis with Kaplan-Meier to examine how event sequences affect employee attrition. We introduce the notion of survival-changing sequential patterns that highlight events that significantly impact the survival estimator. Our findings suggest that certain patterns are associated with a higher rate of employee retention, while the addition of specific events can have a positive or negative impact on employee survival. This research highlights the importance of analyzing event sequences and duration when attempting to reduce employee attrition rates. The practical implications of this research are significant, as it provides a framework for organizations seeking to retain their employees and enhance their overall performance.

Mots-Clés: Employee attrition, survival analysis, sequential pattern mining, interestingness metrics

∗Intervenant
†Auteur correspondant: youssef.oubelmouh@univ-tours.fr
‡Auteur correspondant: frederic.fargon@devoteam.com
§Auteur correspondant: cyril.derunz@univ-tours.fr
¶Auteur correspondant: arnaud.soulet@univ-tours.fr
∥Auteur correspondant: cyril.veillon@devoteam.com