

# The NEWTON Project Gamification Engine

Dan Zhao and Gabriel-Miro Muntean  
*Dublin City University, Ireland*

## Abstract

*The Gamification mechanisms offer innovative ways to make the teaching of STEM subjects more engaging for students, increasing their motivation and bringing relevance to the subjects, usually recognized difficult and boring. As main innovation Ludifly.edu allows the dynamic configuration of elements and rules in logically separated gamification container to support a multi-tenant application through an easy-to-use UI. Based on customization of Drools Rule Engine (a widely used open source software), a large set of gaming parameters and conditions can be set up in order to assign typical rewards as points, badges, levels and concrete awards (eg. digital coupon codes). Leaderboards and players status are also managed by Ludifly.edu and provided as SaaS. Ludifly.edu is integrated in NEWTELP platform by an auto-configuration of elements and rules for each content uploaded in programs and courses generated to run Newton Pilots. Through H2020 NEWTON Project and the use of Ludifly.edu portal, a number of Pilots in different schools in Europe were launched, where mechanics/rules were implemented and integrated in various forms of content such as virtual laboratories, quizzes, social forum, and video-lessons in order to define a gamified e-learning experience and evaluate their effects on learners. The final results were enhanced motivation of learners by emphasizing the sense of challenging to reach the learning goals and get rewards. Also, the teachers were enthusiastic to use this very powerful tool to stimulate the interest of their learners.*