

Project Progress Prediction in Software Development Integrating Time Prediction Algorithms and Large Language Modeling

Authors : Dong Wu, Michael Grenn

Abstract : Managing software projects effectively is crucial for meeting deadlines, ensuring quality, and managing resources well. Traditional methods often struggle with predicting project timelines accurately due to uncertain schedules and complex data. This study addresses these challenges by combining time prediction algorithms with Large Language Models (LLMs). It makes use of real-world software project data to construct and validate a model. The model takes detailed project progress data such as task completion dynamic, team Interaction and development metrics as its input and outputs predictions of project timelines. To evaluate the effectiveness of this model, a comprehensive methodology is employed, involving simulations and practical applications in a variety of real-world software project scenarios. This multifaceted evaluation strategy is designed to validate the model's significant role in enhancing forecast accuracy and elevating overall management efficiency, particularly in complex software project environments. The results indicate that the integration of time prediction algorithms with LLMs has the potential to optimize software project progress management. These quantitative results suggest the effectiveness of the method in practical applications. In conclusion, this study demonstrates that integrating time prediction algorithms with LLMs can significantly improve the predictive accuracy and efficiency of software project management. This offers an advanced project management tool for the industry, with the potential to improve operational efficiency, optimize resource allocation, and ensure timely project completion.

Keywords : software project management, time prediction algorithms, large language models (LLMs), forecast accuracy, project progress prediction

Conference Title : ICMSE 2024 : International Conference on Management and Systems Engineering

Conference Location : New York, United States

Conference Dates : January 29-30, 2024