

## ABSTRACT

*Lecturers are valuable and essential assets who serve as the cornerstone of higher education institutions in carrying out the Tridharma Perguruan Tinggi functions: education, research, and community service. They also play a vital role in supporting the implementation of the university's strategic plans. Evaluating lecturers' publication performance is a crucial aspect of assessing how well they fulfill their responsibilities. Research and publication are mandatory duties in the field of research and development, and the resulting publications contribute to scientific knowledge as well as to society and national progress.*

*XYZ University is one of the public universities in Indonesia that implements the Tridharma Perguruan Tinggi. By leveraging information technology and data-driven approaches in managing lecturer performance, the university can conduct more accurate and systematic evaluations.*

*This study aims to explore the application of predictive analytics by forecasting lecturers' performance for the upcoming year based on data from the past five years. The goal is to provide an overview of publication productivity. The results of this study are expected to offer valuable insights to enhance the quality of lecturers' publication performance, while also supporting the university's efforts to improve academic quality and institutional reputation.*

*The ANOVA analysis results show that some demographic factors, such as academic rank and department or study program, do not have a significant impact on publication scores. However, there is a significant interaction between academic rank and department, indicating that the effect of position on publication scores may vary depending on the department in which the lecturer is based. These findings offer important insights for educational institutions in designing more tailored career development policies according to each department's needs.*

*The use of larger and more heterogeneous data in predictive analytics models—such as training history, teaching load, education level, and involvement in research or publication—can help develop a people analytics model in the context of human resource management. This can generate more relevant and useful insights for decision-makers in educational institutions.*

*Reinforcement Learning, particularly Q-Learning, is used to recommend appropriate interventions for lecturers based on predicted performance outcomes. Through this approach, the system can identify the most effective actions to support the improvement of future publication performance.*

*Institutions are advised to adopt a differentiated approach in evaluating lecturer performance by considering department-specific characteristics and providing more tailored support according to each department's needs.*

**Keywords:** *Lecturer performance, random forest, predictive analysis, Reinforcement Learning*