

Predictive Modeling of Student Behavior in Virtual Reality: A Machine Learning Approach

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Abstract : In the ever-evolving landscape of education, Virtual Reality (VR) environments offer a promising avenue for enhancing student engagement and learning experiences. However, understanding and predicting student behavior within these immersive settings remain challenging tasks. This paper presents a comprehensive study on the predictive modeling of student behavior in VR using machine learning techniques. We introduce a rich data set capturing student interactions, movements, and progress within a VR orientation program. The dataset is divided into training and testing sets, allowing us to develop and evaluate predictive models for various aspects of student behavior, including engagement levels, task completion, and performance. Our machine learning approach leverages a combination of feature engineering and model selection to reveal hidden patterns in the data. We employ regression and classification models to predict student outcomes, and the results showcase promising accuracy in forecasting behavior within VR environments. Furthermore, we demonstrate the practical implications of our predictive models for personalized VR-based learning experiences and early intervention strategies. By uncovering the intricate relationship between student behavior and VR interactions, we provide valuable insights for educators, designers, and developers seeking to optimize virtual learning environments.

Keywords : interaction, machine learning, predictive modeling, virtual reality

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