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**REVIEW**

on the thesis of the master’s student: Primzhanov Zanggar Galymuly

Kazakh-British Technical University

Major: 7M06106 Software Engineering

**“HAPTIC FEEDBACK RESEARCH IN VIRTUAL REALITY”**

Zanggar Primzhanov's thesis makes a significant contribution to the field of virtual reality (VR) and haptic feedback research. The work covers a broad spectrum of issues related to the use of haptic feedback to enhance user interaction in virtual environments.

The introduction and literature review provide a comprehensive analysis of the current state of VR and haptic feedback technologies. The author demonstrates a deep understanding of the historical development and current advancements in this field, providing numerous examples and citing relevant studies. Special attention is given to analyzing haptic feedback devices, such as gloves and vests, which helps understand their impact on user experience and interaction efficiency in VR. The research methodology, incorporating both quantitative and qualitative methods, is well-structured and justified. The mixed-methods approach allows for a comprehensive understanding of how haptic feedback affects performance metrics and user engagement levels. The experimental data, in particular, highlight the impact of various haptic feedback methods on task accuracy and user immersion in virtual environments. The results are clearly presented through tables and graphs, making them easy to interpret. The author effectively uses statistical methods to analyze the data, confirming the validity and significance of the findings. The conclusions emphasize the importance of further developing haptic feedback technologies to create more realistic and effective virtual environments.

Zanggar Primzhanov has demonstrated high research skills, the ability to work with scientific and technical literature, and the practical application of acquired knowledge. The work is distinguished by thoroughness, clarity of presentation, and the novelty of the proposed solutions.

I recommend the master's thesis completed by Zanggar Primzhanov for defense. I think that this work deserves the mark \_\_\_\_ (\_\_\_), and Primzhanov Z.G. deserves to be awarded the degree of Master of Technical Sciences in the educational program 7M06106 Software Engineering.

**Research supervisor.**

Candidate of Technical Sciences,

Associate Professor, Dean of the Faculty

"Computer technologies and cybersecurity" JSC "IITU" N. Seilova

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