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ARTICLE

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QIKRR: A QUANTUM-INSPIRED APPROACH FOR CLINICAL SENTIMENT ASSESSMENT OF READING NEWS ARTICLES

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Mental health rehabilitation requires a safe and supportive environment for vulnerable patients. Reading materials, especially news content, can affect patients recovering from stress, depression, trauma, or addiction. This paper presents a Quantum- Inspired Kernel Ridge Regression (QIKRR) framework to evaluate the emotional suitability of reading materials through sentiment score prediction. The proposed model combines TF-IDF, Single Value Decomposition (SVD), trigonometric embeddings, and Kernel Ridge Regression (KRR) to estimate continuous sentiment scores while using a quantum-inspired trigonometric embedding that emulates quantum feature-space expansion while remaining fully executable on classical hardware. Experimental results show stable performance with low error and minimal overfitting. The model achieves nearly 70% accuracy at ± 0.15 tolerance and 95% at ± 0.3 tolerance, showing strong potential for clinical content screening.