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Mental Health Support for Emergency Telecommunicators: A Comparative

Analysis of of AI Techniques

Emergency telecommunicators are critical first responders who navigate high-pressure situations to ensure timely and effective emergency responses. Despite their pivotal role, research often overlooks the unique stressors they face. Studies reveal that telecommunicators frequently experience high levels of stress due to time-sensitive decision-making, limited control over outcomes, and insufficient organizational support, contributing to mental health challenges. While advancements in artificial intelligence (AI) have demonstrated potential in helping workplace efficiency and mental health support, there is limited research applying AI tools to analyze the emotional and psychological well-being of telecommunicators. Current studies predominantly rely on qualitative methods, which, while valuable, lack the objectivity and scalability required for real-time interventions. Furthermore, the integration of multimodal AI approaches remains underexplored in this field. This research aims to address these gaps by developing an AI-driven framework to analyze dispatcher stress levels using transcripts and audio recordings. This study compares various AI NLP techniques, such as sentiment analysis, topic modeling, and transformer-based models that can be utilized to foster improved mental health support and operational efficiency. The findings

demonstrate the transformative potential of AI in this profession, while contributing to ethical AI development and emergency service innovation.

Presentation Theme: AI in Emergency Management.

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