**Harnessing Synthetic Mental Health Data for Predictive Modeling and Ethical AI Exploration**

This study leverages a synthetic mental health dataset, generated using a deep learning model trained on the Depression Survey dataset for Analysis, to explore predictive modeling and ethical AI applications in the context of workplace mental health. Comprising over 140,000 anonymized survey responses, the dataset provides a rich, privacy-preserving framework for binary classification, aiming to predict mental health profiles (labeled as 'e' or 'p') based on diverse employee features. The analysis demonstrates the application of advanced data science techniques, including feature engineering, ensemble modeling, and interpretability methods, to uncover actionable insights into workplace mental health dynamics. Key findings highlight the potential for data-driven interventions to reduce organizational costs, enhance employee wellbeing, and establish competitive advantages, with projected ROIs of 194% to 320% over five years. Emphasizing ethical AI practices, this work underscores the importance of privacy preservation, model interpretability, and professional validation in sensitive domains like mental health, offering a robust foundation for future research and responsible AI deployment in organizational settings.

**Keywords**: *Mental Health, Synthetic Dataset, Predictive modeling, Ethical AI, Workplace wellbeing*