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In Collaboration with

UNIVERSITY OF WESTMINSTER

**PIEE-f: Enhanced Exercise Intensity Prediction**

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Submitted in partial fulfillment of the requirements for the BSc in Computer Science  
degree at the University of Westminster.

**July 2023**

## **ABSTRACT**

Fitness is getting increasingly saturated with new technology and new inventions every day, and it is both a blessing and complexity. With modern advancements in fitness, we can measure fitness levels to a fair extent. With technological advancement, we can maintain our fitness with new and advanced equipment and medical procedure. However, it can often be alarming for a beginner to navigate the fitness world and can be overwhelming.

To step into the realm of fitness, one must have significant knowledge gathered or have a coach or system that would guide them through the early process in today's world. It's become much more complex due to competition and the spread of social media and misinformation. As a beginner or an average gym goer, it is overwhelming to decide what type of training we should require, and coaches and online fitness prediction tools can help us with this but even though there are many problems with that, such as accessibility issues due to finance, geographic restriction and misinformation and fake gimmicks.

Exercise intensity-based systems can resolve this dilemma. It gives beginners and others a very simplified approach to fitness and easy-to-follow guidelines based on their smartwatches' health metrics, or they could measure easily in a very cost-effective method. It combines a supervised machine learning method with an existing fitness level prediction algorithm to give simplistic and direct advice to the users, where they can immediately apply the advice, see the benefit, and constantly reevaluate their training according to their needs.

**Keywords:** Supervised Machine Learning, Classification, Random Forest Algorithm, Explainability Integrated, Exercise Intensity prediction, Fitness Prediction