

OVERVIEW ON MIX DESIGN OPTIMIZING AND SELF-COMPACTING CONCRETE ENHANCEMENT WITH MACHINE LEARNING

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ABSTRACT

Self-compacting concrete, also referred to as SCC, is a type of concrete that was invented relatively recently and possesses the ability to flow on its own. As a result, it may completely fill molds without the need for mechanical vibration from the outside. The optimization of the SCC mix design is an absolute necessity due to the complicated nature of the features that it possesses. In order to accomplish this optimization, it is vital to find a balance between the workability of the material, its strength, its durability, and its environmental sustainability. It has come to light that artificial intelligence (AI) technologies, including as machine learning (ML), deep learning, and genetic algorithms, have emerged as strong instruments in the optimization and progression of SCC. This information has been brought to light. The goal of this study is to look into the many AI techniques used in SCC's mix design, specifically looking at the merits, cons, and potential future improvements of these approaches.

KEYWORDS: *Artificial Intelligence (AI) Technologies, Machine Learning (ML), Deep Learning,, Genetic Algorithms ETC*

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