

## Function-Based Synthesis Methods in Engineering Design: State-of-the-Art, Methods Analysis, and Visions for the Future

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### Abstract

Concept generation is at the heart of engineering design. This chapter considers an emerging tool set for generating concepts: function-based synthesis methods. To understand this tool set, the prominent methods in the field are reviewed and summarized, with a subset being investigated with more technical rigor. In addition to this review and investigation, the methods are analyzed against three models: a method architecture, design process, and research model. This analysis extracts the fundamental features of the methods, provides a basis for comparison, and elicits future research opportunities, directions, and industrial applications. Through this analysis, a clear picture emerges of the function-based synthesis field: Many fundamental research results have been realized, and it is just a matter of time before we have tools to assist product development teams in generating dynamic systems, kinematic structures, and the skeletal backbones of consumer products.

# Engineering Design Synthesis

**Minjie Lin**



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## Unveiling the Magic of Words: A Review of "**Engineering Design Synthesis**"

In a world defined by information and interconnectivity, the enchanting power of words has acquired unparalleled significance. Their power to kindle emotions, provoke contemplation, and ignite transformative change is truly awe-inspiring. Enter the realm of "**Engineering Design Synthesis**," a mesmerizing literary masterpiece penned by a distinguished author, guiding readers on a profound journey to unravel the secrets and potential hidden within every word. In this critique, we shall delve into the book's central themes, examine its distinctive writing style, and assess its profound effect on the souls of its readers.

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