Dynamic Sketch: An Exploration of Coupling Digital Sculpture with Physical Simulation to Enhance the Tangibility of CAD Modeling Systems

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ABSTRACT
Since the invention of modern digital CAD systems, most creative works of designers and artists have shifted into digital form. The working space of design has been gradually converted into digital media. However, despite the numerical algorithms' (relative) correctness and the graphical interface's visualization, researchers have demonstrated its inefficiency in producing creativity. Nonetheless, some studies suggested the potential of CAD system in supporting ideation-oriented work, given its tangibility can be improved. The thesis proposes a new paradigm of building a CAD system based on the combination of digital sculpting and physical simulation – two standard techniques applied in the design industry but rarely combined – to improve the current CAD system's tangibility.