Representations and Algorithms for CAD/CAM Digital Libraries

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Extended Abstract

This presentation describes our initial effort to deploy a digital library to support engineering design and manufacturing. This experimental testbed, *The Engineering Design Repository*, is an effort to collect and archive public domain engineering data for use by researchers and engineering professionals.

CAD knowledge-bases are vital to engineers, who search through vast amounts of corporate legacy data and navigate on-line catalogs to retrieve precisely the right components for assembly into new products. For example, it is conservatively estimated that more than 75% of design activity involves the reuse of previous designs.

Our research begins to address the critical need for improved computational methods for reasoning about complex geometric, feature, and engineering information. In particular, we focus on archival and reuse of design and manufacturing data for mechatronic systems. We describe the research problems, give an overview of the initial architecture of testbed, and introduce some of our current results. We expect this work to help to further the mathematical foundation and algorithmic tools to support content-based retrieval from large engineering knowledge-bases.