

## **3D Model Search for Design Reuse**

by

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### **ABSTRACT**

3D model search is studied lately due to the need of model reuse in design and the common availability of 3D databases. In modern industrial design, a significant amount of information generated during the lifecycle of a product is associated with 3D models. Reuse of this information can significantly shorten design times and reduce costs. As a result, the development of efficient search-related mechanisms is necessary to speedily identify 3D models from large repositories. The content-based 3D model retrieval methods are suited for search as they do not require any annotation as that with a textual search. They only require robust 3D features that can be applied automatically.

In this seminar, we will introduce our works on the content-based 3D CAD model retrieval. The special structures of 3D CAD model, such as complex topology and singular structure, bring problems both from model matching and computation. How to develop approaches to deal with these problems are to be discussed. Some of our works on precision machining modeling and monitoring will also be briefly introduced.

### **BIOGRAPHY**

Dr. Zhu Kunpeng received his Ph.D. (2007) in mechanical engineering from National University of Singapore (NUS). He is currently a research fellow in the Lab of Concurrent Engineering and Logistics (LCEL), NUS.

His current interest focuses on developing algorithms and approaches for 3D model matching in engineering design reuse as well as some medical applications. He also performs research in the area of precision machining process modeling and control. Some results of his works are published in the journals such as Computer Aided Design, Computer in Industry, Mechanical System and Signal Processing, and International Journal of Machine Tool and Manufacturing etc. He has been serving as associate editor to IEEE/RSJ International Conference on Intelligent RObots and Systems (IROS), and reviewer of many journals such as Computer in Industry, International Journal of Advanced Manufacturing, and Journal of Algorithms etc. He has supervised several undergraduate final year projects and is a tutor of high school students.

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***All are welcome!***

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