

融合肖像漫畫之立體誇張肖像模型產生系統

摘要

在電腦硬體快速發展的時代，以前被視為只能在工作站上執行的 3D 繪圖現今也可以輕易地在普通的家用電腦上執行。藉著網路視訊攝影機低廉的價格以及其普及化的趨勢，我們設計一套兼顧快速以及經濟性的系統。使用者可以輕易自行架構攝影環境，不需專業的操作便可以自動產生立體的人臉誇張模型。另一方面我們改良並結合先前的 2D 誇張肖像漫畫研究，除了大幅提升五官定位的精確度外，藉著替換多張參考畫作，產生出來的模型可以呈現不同藝術風格的外觀，以供廣泛的娛樂用途。

A 3D Caricature System by Fusing Caricature Images

Abstract

With the advances of hardware nowadays, the computation and demonstration of 3D graphics are readily attained on a personal computer. At the same time, thanks to the prevalence of instant messaging software, webcam has become very popular. These combined factors have motivated us to design an economic and effective solution for general users to create their own 3D caricature models without complex procedures or instructions.

In this thesis, we have developed a system which can extract and analyze facial features from an image pair captured by two webcams, and then generate a 3D face model based on it. Specifically, we improved previous research to obtain more accurate feature locations, and extended the exaggeration algorithm to generate more impressive effects. By fusing a caricature produced with different work as references, the system is capable of painting the face model with various artists' styles.