單鏡頭之影像距離測定

陳錫勳、劉仁俊

E-mail: 9015665@mail.dyu.edu.tw

摘 要

利用攝影機來作為物體距離測定的方法，可分為雙鏡頭與單鏡頭兩種方式。由於在雙鏡頭的方法中各鏡頭所拍攝之影像間的對應性不易確定因而較不可靠。近來許多研究改採用單鏡頭的方式來發展距離測定的理論，且多是以散焦測距的原理為主，利用鏡頭未正確對焦而產生影像模糊的程度來作為估測物體距離的依據。首先以不同的鏡頭參數，先後對同一景物拍攝多張聚焦或散焦的影像，再計算各影像間同一區塊上模糊的比率以求出其模糊的梯度，進而推出影像中各區塊的遠近距離。但由於影像感測器之雜訊干擾及多張影像間因為鏡頭晃動而產生的位移誤差，破壞了距離測定的準確性。過去所發表之相關研究多都是侷限在理想的實驗環境之下，忽略了實際應用上所面臨的問題，而降低實用價值。針對此一問題，本論文應用最小平方誤差法則提出改進。文中詳細闡述其數學理論，並佐以模擬及驗證，對其解決問題的有效性作一評估，且提出幾個實施時較佳的結構之建議方案。本研究成果將有助於解決單鏡頭散焦距離測定法實際運用上所面臨的瓶頸，在電腦視覺的領域上有具體貢獻。

關鍵詞 : 關鍵字，關鍵字，關鍵字，關鍵字，關鍵

目錄

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