



教師指導學生專題製作與論文競賽補助 成果報告

一、申請補助計畫基本資料

申請教師	徐位文	核定經費	
單位系所	資訊工程學系	經費執行情況	<input type="checkbox"/> 已請購核銷完畢 <input type="checkbox"/> 尚未請購核銷 <input type="checkbox"/> 經費餘款_____
計畫執行年度/學期	113 年度第一學期	參賽期程	113 年 08 月 18 日~113 年 08 月 20 日
參加競賽/學術活動名稱	1. CVGIP 2024	作品名稱	1. Computer-aided Diagnosis for Breast Carcinoma and Its Visual Interpretability with Mammography
指導參賽學生姓名	1. 薛秉謙、林秉緯	班級	資工四乙
競賽性質	<input checked="" type="checkbox"/> 國際性 <input type="checkbox"/> 校際 <input type="checkbox"/> 校內(院級以上)	參賽地點	1. 國立東華大學
系所主管簽章		日期	
學院院長簽章		日期	

一、參賽作品：

Wei-Wen Hsu, Zhen-Shen Wu, Ping-Chien Hsueh, Bing-Wei Lin, and Chih-Hsien Hsia*. "Computer-aided Diagnosis for Breast Carcinoma and Its Visual Interpretability with Mammography." In *The 37th IPPR Conference on Computer Vision, Graphics, and Image*



Processing (CVGIP) (Accepted)

Abstract - Breast cancer is one of the most common cancers among women worldwide, and the high incidence of breast cancer makes early detection crucial for reducing mortality rates. Mammography is currently the preferred imaging modality for breast cancer screening and the initial detection method. Recently, many studies have applied deep learning methods to analyze the lesion's benignity and malignancy based on mammographic images. However, most of these studies simply focus on the performance of the proposed models for diagnosis predictions, without explaining the analysis process of the deep learning model from a clinical perspective. Therefore, in this study, tumor's margin characteristics and its shape characteristics were further taken into account, and all the features were concatenated to achieve comprehensive diagnosis. For the experiment, the dataset of CBIS-DDSM was used with the training set and testing set given. It provides tumor's clinical diagnostic information, which includes tumor margins, shapes, density, BI-RADS assessment, and the diagnostic labels. With the extra tumors' margin and shape characteristics considered, the proposed system achieved 80.45% in accuracy and 80.71% for sensitivity, which shows competitive performance among the related work. Moreover, it is worth noting that our proposed system provides an analysis from the clinical perspective with explaining tumor margin and shape characteristics and delineating the corresponding areas of these characteristics on the images so that the visual interpretability of the system can be validated.

二、參加之競賽活動：

1. CVGIP 2024

Table with columns for time slots (12:00-13:30, 13:30-15:00, 15:00-15:20, 15:20-16:20, 16:20-16:30) and session details including Oral Sessions (15-25), Poster Sessions (III, SS04-), and Coffee Breaks. Includes host names and room numbers.



三、參賽準備與活動記錄



圖說明：CVGIP 2024 研討會看板



圖說明：CVGIP 2024 oral presentation



圖說明：CVGIP 2024 頒發發表證書



圖說明：CVGIP 2024 與通訊作者合影

四、參加競賽成果

1. CVGIP 2024

心得 1: 在大學期間能夠參加研討會，對我來說是一個難得的經驗，尤其這是我第一次在正式場合進行口頭報告。研討會上，我不僅有機會聆聽來自其他學校學生的精彩報告，從中學習不同的研究思維與方法，還有幸在花蓮探索當地的風景與文化，這讓這次經歷更加豐富而充實。這次研討會不僅是學術上的提升，也為我帶來了寶貴的成長機會。

心得 2: 這次參加在東華大學舉辦的研討會，對我來說是一段非常寶貴的經歷。透過聆聽來自各校學生的報告，我深入了解了當前不同領域的研究方向，拓展了視野。我期待將這些所學的新知識與經驗運用到自己的研究中，持續改進與進步，進一步提升自身的學術能力。