

組別 Team ID：202209

專題屬性 Category：多功能網站系統（Website System Design）

專題名稱 Project：數位學伴 - 緣來識你

（Digit Companions for Learning）



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三、系統環境 System environment：

（一）軟體 Software：

作業系統 Operating System：Windows 10

資料庫 Data Base：My SQL 8.0.11

語言 Programing language：PHP 8.0.11、Python 3.10.0

開發工具 Toolkits：Visual Studio Code

（二）硬體 Hardware：

Windows 桌上型電腦一台

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四、簡介：

（一）系統簡述

數位學伴是以大學伴以及小學伴之間的陪伴與學習。由大學伴根據小學伴的需求客製化教材，並透過視訊的方式一對一教導，除了提高大學生的自我管理、關懷精神外，還幫忙提升學童的學習興趣。每周的數位學伴課程會產生 122 分的教材檔及課程的錄像檔。計畫助理及師長要在課程完成教材檢核以及課後由錄像檔了解大小學伴在計畫課程中進行的互動情形。

本研究團隊開發一套「教材評分暨微笑辨識系統」，大學伴們透過本系統上傳教材及上課的錄像檔案。教材評分系統半以自動化對教材的智財權、不雅文字以及字型大小格式等進行檢核，能夠有效降低計畫助理與師長閱讀多份教材的壓力，及即通知大學伴進行教材的更新，亦可進一步進行優良教材選拔。此外，微笑辨識系統以 AI 分析上課錄像檔，運用微笑指數歸類出上課氛圍好或不好的大小學伴，打造情緒覺察智慧學習與課程關懷最後再做出可視化的圖表，讓代班老師方便查看，協助注意課堂狀況，保持良好的學習氛圍，藉以提升整體數位學伴學習的品質。

（二）特色

- 教材篩選及評分：

自動篩選智財權之標明、不雅文字；透過字型大小與類型、字數、簡報頁數等，進行自動評分；主題分析，透過 Latent Dirichelet Allocation (LDA) 進行主題建模，分析教材之主題。

- 微笑辨識：

OpenCV、Image Hash 與 YOLO 實現微笑辨識，打造情緒覺察智慧學習與課程關懷。

五、Introduction：

Digital Learning Companion Project are the companionship and learning between university and primary school students. College partners customize teaching materials according to the needs of primary school partners, and teach one-on-one through video. In addition to improving the self-management and caring spirit of college students, it also helps to enhance students' interest in learning. The weekly digital buddy course will generate 122 points of teaching materials and video files of the course. Project assistants and teachers should check the teaching materials after the course and learn about the interaction between the big and small schoolmates in the planned course from the video file after class.

The research team developed a set of "teaching material scoring and smile recognition system", through which university partners upload teaching materials and video files of class. The textbook scoring system automatically checks the intellectual property rights, indecent characters, font size and format of textbooks, which can effectively reduce the pressure of program assistants and teachers to read multiple textbooks, and immediately notify university partners to update textbooks. The selection of excellent teaching materials can also be further carried out. In addition, the smile recognition system uses AI to analyze the class video files, and uses the smile index to classify students with good or bad class atmosphere, creating emotional awareness, smart learning and course care, and finally making a visual chart, which is convenient for substitute teachers. Check, help pay attention to the classroom situation, maintain a good learning atmosphere, so as to improve the overall quality of digital student learning.

Features

- (1). Selection and grading of teaching materials：Automatically screen indecent words of intellectual property rights; Automatic scoring by font size and type, word count, number of briefing pages, etc.; Topic analysis, through Latent Dirichelet Allocation (LDA) for topic modeling, analysis of the theme of the textbook.
- (2). Smile Detection：OpenCV, Image Hash and YOLO enable smile recognition, creating emotion-aware intelligent learning and curriculum care.