

因應智慧經濟時代來臨，僑委會策劃10期智慧經濟電子報，內容觸及營運流程、顧客服務及產品技術力升級等所需資訊情報，協助僑臺商面對後疫情時代經濟局勢進行數位轉型，全力發展事業。

第7期

AI 診斷
AI Medical Solutions
醫師第二雙眼睛
Doctor's second pair of eyes

ARTIFICIAL INTELLIGENCE



AI科技在醫療領域的應用十分廣泛，可以輔助診斷、治療，也可投入藥物的開發和醫學資料的處理分析，本期介紹的AI診斷以人機和諧為宗旨，扮演著醫療助攻、輔助的角色，提升特定疾病的診斷正確率，也讓醫學資料的管理與分析更有效率，期許讓AI(人工智慧)與HI(人類智能)的結合，帶給全球僑民僑商有溫度的智慧AI醫療應用，增進福祉。

AI technology can be widely used in healthcare and medical domains. It can provide a supportive role in terms of diagnosis, treatment, drug development and medical data processing. The following article introduces AI medical solutions with diagnosis focus which aims at achieving man-machine harmony. The solutions not only increase the accuracy of diagnosis for certain diseases but also improve medical data management and analysis. We wish to spread more and warm AI medical solutions for our citizens abroad and bring more benefits with great applications of AI (artificial intelligence) and HI (human intelligence).

雲象科技以AI助攻診斷，成為醫師第二雙眼睛

aetherAI makes AI doctors' second pair of eyes with medical image AI diagnostic support

雲象科技看重台灣先進的醫療科技發展與ICT實力，專注於深度學習在醫療影像上的應用，結合AI與數位病理來提升醫師診斷效率，協助醫院病理數位化的同時，不僅單純將醫療影像轉到電腦螢幕上，更開發多類型的AI輔助工具以提升診斷品質及一致性，同時減輕醫師病理診斷上的負擔，讓AI助攻、成為醫師的第二雙眼睛。

aetherAI has been dedicated to deep learning and AI in medical imaging as the founders see strengths in Taiwan's advanced medical technology and ICT development. Through combing AI technology and digital pathology, aetherAI does not only assist hospitals in digital pathology transformation, it also provides physicians with AI-powered diagnostic tools aiming to improve productivity, quality and consistency of diagnostic process and lifts a lot of burden off doctors. aetherAI has successfully made AI physicians' second pair of eyes with AI diagnostic support.



造血疾病檢查需要進行抽血、骨髓穿刺，將抽出的骨髓液做成抹片、進行染色後，醫檢師需要在顯微鏡下以人工方式觀察、判讀，需計算與分類達500顆骨髓細胞型態，不僅仰賴長久訓練及專業經驗，消耗醫師人力、也耗時，且計數的結果難以再次確認或驗證。雲象科技與臺大醫院檢驗醫學部合作，透過AI，一鍵即可完成骨髓抹片的自動分類與計數，提供客觀量化的數據報告，提升判讀品質及一致性，雲象科技更積極開發AI自動選取區域之影像辨識，未來將升級為全自動系統。

Conventional examination methods for hematopoietic diseases require bone marrow aspiration and biopsy. This procedure is performed by hematologists under microscopes relying on their naked eyes, long-term training and experience. Despite the fact that there are hundreds and hundreds of cells to be observed, the results and performance are labor intensive, time consuming, and difficult to confirm or verify. With doctors' needs and struggles in mind, aetherAI partnered with National Taiwan University Hospital and has successfully developed aetherAI Hema, dedicated to automating bone marrow differential procedure. With AI at your side, results are readily-available with just a few clicks. Additionally, aetherAI is currently moving onto the next phase to develop fully automated system including auto take-view functions for enhanced quality and user experience.



雲象科技的另一AI診斷實績，在於大腸癌的篩檢，大腸癌持續蟬聯台灣十大癌症之首，以往的篩檢時常會受到腸道的轉彎或角度影響，或病人清腸不完全等外在條件限制下，使醫師在憑肉眼判讀內視鏡影像時，有所遺漏或不易察覺到瘻肉，雲象科技因此攜手國泰醫院消化內科，共同開發出aetherAI Endo，輔助醫師即時判讀，讓大腸瘻肉無所遁形，超前治療、提高存活率。

Another medical AI diagnosis solution aetherAI is delivering is aetherAI Endo - real-time polyp detection during colonoscopy. Colorectal cancer has been on top of the most common cancer list for years in Taiwan. Physicians often struggle with the turns and angles in intestines, improper colon cleansing, and other external factors so that they would not be able to have a clear view while performing colonoscopy. To help overcome these obstacles, aetherAI and Cathay General Hospital jointly developed aetherAI Endo to detect colorectal polyp and adenoma in real-time, performing AI inference at 30 frames per second.

雲象科技助攻，醫師攜手人工智慧讓病灶無所遁形，邁向全球醫療市場

aetherAI is assisting physicians with AI-powered diagnostic support, aiming for global markets

雲象科技合作夥伴及客戶以國內外大型醫學中心為主，國內以台大醫院、長庚醫院、國泰醫院、臺北榮民總醫院、臺北醫學大學為首，海外合作夥伴更跨及美國洛杉磯Cedars-Sinai Medical Center、美國匹茲堡University of Pittsburgh Medical Center等，公司宗旨為運用人工智慧實現精準醫療，讓深度學習落實臨床，提升醫療品質與一致性，期許讓更多疾病無所遁形、造福全球病患。

Having strong connections with top medical centers and hospitals in US and Taiwan, aetherAI's services are applied throughout hospitals in Taiwan, including National Taiwan University Hospital, Chang Gung



數位病理AI應用介紹



QNAP QuAI 醫療領域的資料儲存解決方案，人機協力、為您診斷

Starting from storing medical data, QNAP's QuAI solution provides diagnostic services with man-machine assistance.

QNAP 威聯通科技專注於資訊儲存、網通與智慧視訊三大領域之智慧解決方案，乘著AI智慧浪潮與資料儲存的核心實力，QNAP發展出QuAI人工智慧軟體平台，搭載高安全性的NAS資料儲存技術，加以AI運算、學習、分析等智能，使用者可快速建構最佳化AI模型，QNAP尤其應用QuAI於醫療領域，以人機協力為宗旨、打造具備學習能力的AI診斷與醫療影像判讀系統，大幅提昇眼部病變及其他領域的診斷準確率，邁向AI醫療新世紀。

QNAP has been dedicated to storage, networking and smart video innovations since its founding. Stepping into the AI wave with its data storage strength, QNAP has developed the QuAI artificial intelligence software development platform. This platform is of high capacity of NAS (network-attached storage) system and carries AI computing, deep learning, analyzing and other smart features that enable users to build the best AI model in the shortest time. QuAI can be especially applied in medical domain. With harmony of man and machine in mind, QNAP is devoted to building an AI diagnostic system that can learn and study medical images and can increase diagnostic accuracy regarding eye diseases and other sickness.

QuAI 解決方案，打造 AI 黃斑部病變智慧醫療輔助診斷系統，大幅提升診斷準確率及效率

The pioneering QuAI solution provides an AI diagnostic system for age-related macular degeneration which significantly improves diagnostic accuracy and efficiency.

隨著3C產品的使用廣泛，智慧型手機重度使用者逐漸成為老年性黃斑部病變的高危險群，並出現患者年輕化的趨勢，該病變需透過醫師對於病患的視網膜影像進行判讀與診斷，但醫學影像的儲存、比對與解讀都不容易，巨大的資料量也需要可靠、安全且符合法規的儲存方式。

As the use of electronic devices is growing dramatically, intensive mobile phone users are at higher risk for age-related macular degeneration. Doctors diagnose age-related maculopathy through studying retinal images. However, medical images are difficult to properly store, compare and study. It also requires a reliable, safe, lawful way to store abundant medical data.

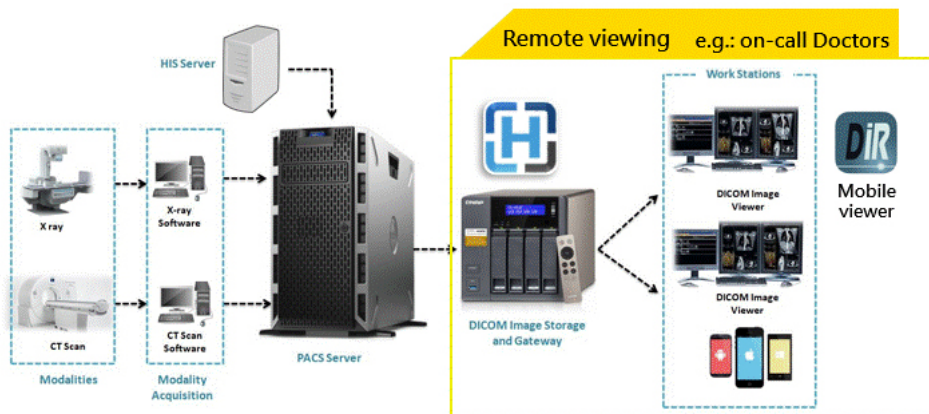
為解決前述難題，QuAI解決方案的老年性黃斑部病變智慧醫療輔助診斷系統，搭載高安全性、符合HIPAA法規(美國聯邦健康保險法)的數位醫療資訊儲存空間，汲取醫務委員會智慧電子報，進行醫療影像的標記、定義與分類，並透過深度神經網路演算法，持續優化AI的訓練與診斷模型，更有效率地透過AI協助醫師判讀視網膜影像，提升判讀的效率與準確率，發現早期黃斑部病變，提前治療，讓病患免受失明之苦。此外，QNAP積極升級QuAI方案，擴大整合Orthanc軟體套件，讓醫療影像的擷取、傳輸、處理流程更為快速，並輔以備份、資料快照(snapshot)的保護，可快速還原遭到誤刪的檔案。

To overcome the struggles, QuAI solution provides intelligent diagnostic system for age-related maculopathy. With highly secure and lawful digital storage space for medical data, QuAI gains and digitalizes knowledge and experience from doctors then tags, defines and categorizes medical images. Further, it applies deep neural network to constantly optimize AI training and diagnosis models to improve the accuracy of diagnosis for age-related maculopathy. Early discovery of age-related maculopathy symptoms can lead to timely treatment and lower risk of progression of the disease. Moreover, QNAP has recently upgraded its QuAI solution with Orthanc software which speeds up the extraction, transmission and processing of medical images. The upgrade also provides backup and snapshot functions for quick restore purpose.



QuAI 解決方案不僅有效幫助病患防範老年性黃斑部病，其低成本、快速導入的特性，更可以協助偏鄉或醫療資源不足的地區輕鬆部署這套系統。此外，QNAP威聯通科技未來將針對更多種醫學項目，發展更多元的AI精準醫療服務，包含NGS基因定序、腦瘤偵測、腫瘤分析、放射治療AI導入等，期許透過其在全球各地的15個海外據點，服務更多病患、僑民與僑台商。

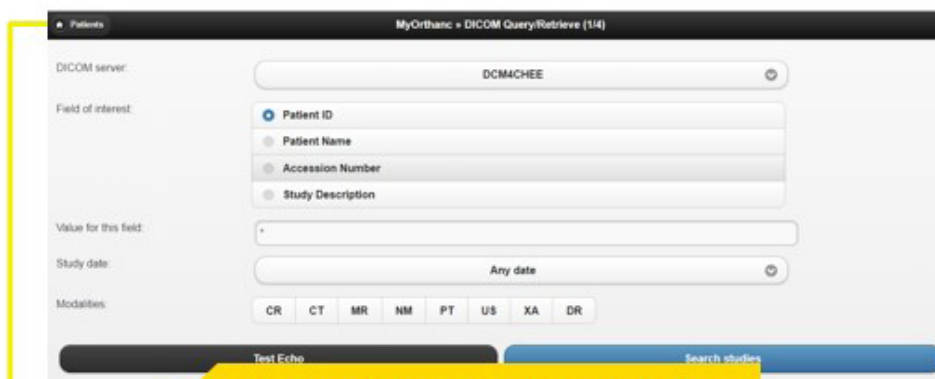
QuAI is a AI medical solution that effectively achieves early discovery of age-related maculopathy. Its features of lower costs and easy installation can also benefit countryside and areas where there are lack of medical resources. QNAP will be exploring more AI medical applications and services, such as NGS gene sequencing, brain tumor detection, tumor analysis, and radiotherapy. Hoping to benefit all Taiwanese citizens and more patients, QNAP is tirelessly providing its services through 15 offices around the world.





(<https://www.apreventmed.com/>)

The infographic features a central image of the QNAP NAS server. To its left, three teal diamond-shaped icons represent different use cases: 'Tools' (with icons for a magnifying glass, a pair of glasses, and a document), 'Surveillance' (with icons for a camera, a person, and a monitor), and 'Entertainment' (with icons for a music note, a film strip, and a microphone). To the right of the server, the Orthanc logo is displayed above the text: 'Integrated with Orthanc, QNAP NAS now offers storage solutions for medical images, accompanying three features -Data security, efficient management and easy access'. Below the Orthanc logo, it says 'New-added healthcare App'.



DICOM server setting for images query/retrieve

QuAI: your AI developer package on QNAP NAS



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