用於微創手術的智能磁導內窺鏡

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我們的發明包括兩個部分。內部是一個小巧磁力內窺鏡，可「貼」在病人胸腔壁或腹腔壁，亦可旋轉或滑動以改變鏡頭視角。外部則是一個人工智能操控的機械臂，可利用磁力驅動內窺鏡自動追蹤由人工智能在病人體內探測到的目標，例如手術工具。

這項發明相比傳統微創手術用內窺鏡，無需佔用病人身上的切口，減少造成的傷害。它亦避免了術中儀器的碰撞，使手術流程更加順暢。同時，它擴展了內窺鏡視野，可提供多角度圖像，可在腔內自行清潔，以及直觀控制，減輕了外科醫生的負擔。

面對新冠疫情和人手短缺的挑戰，此類智能輔助機器人的出現亦可減少手術時需要的人手，從而減低人力資源負擔以及醫護人員暴露於病毒的風險。

Intelligent magnetic anchored and guided endoscope for minimally invasive surgery

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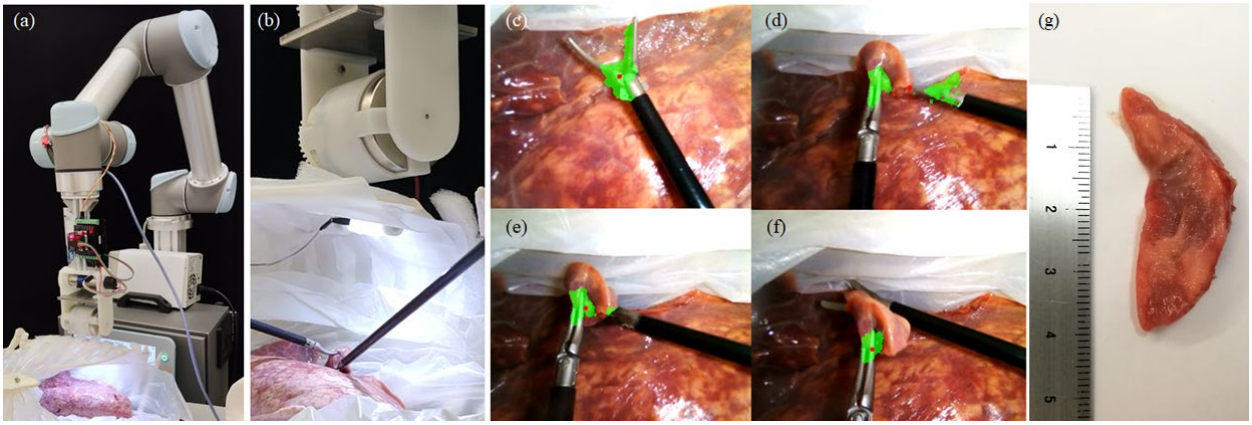
Our invention includes two parts.
The internal unit is a compact magnetic endoscope that “sticks” to the chest/abdominal wall inside patients and rotates/slides to change camera view.

The external unit is a robot arm with AI-based intelligent controller. The robot arm steers a magnet to drive the endoscope to automatically follow the AI detected target, e.g. surgical instruments, inside patients.

This invention reduces patient’s trauma by removing the incision port required by conventional endoscopes in minimally invasive surgery. It lessens surgeon’s burden and allows for a smoother surgical procedure by minimizing instrument fencing. The new endoscope can also provide a wider endoscopic view and has potential for multi-angle views, self-cleaning and intuitive control capabilities.

In the era of COVID pandemic and manpower shortage, such intelligent surgical assistant robots enable operation with fewer surgical assistants, thereby alleviating the manpower shortage and reduce health workers’ exposure to COVID.



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23 Mar 2021