# 附件四、技術說明表

## 浮空顯示光學元件

**提案人： 李佳翰** 教授
**單　位：** 國立臺灣大學　工程科學及海洋工程學系/研究所
**簡　歷：**http://homepage.ntu.edu.tw/~jiahan/

**市場及需求:**

透過此浮空顯示技術搭配感測器能應用如大型醫院、診所、藥局、醫學中心等場域，將醫療設備的觸碰介面或常見的顯示設備、門禁系統等，以懸浮顯示技術取代平面的觸碰面板、觸碰感應按鈕等操作介面，搭配懸浮操作來達到非接觸式觸碰與控制感應，能有效避免透過與物體間的碰觸而造成的接觸感染。一般常見的介面如電梯按鈕、販賣機、提款機等會被群眾大量應用場域，在疫情時代，也可以有效降低人與人的連結，減少傳播鏈形成的機率，降低感染風險。此外，當實踐浮空顯示技術於消費性電子產品中，有別於傳統的平面資訊，浮空顯示技術，具備深度影像的特性，凡視訊電話、遠端會議等商業辦公或是電影、語音娛樂等服務，皆能提供大眾身歷其境感受。當應用於車載環境，有別於傳統的抬頭顯示器，能在車內提供可互動的浮空實像供乘客直覺性的操作，實踐可使乘客在社交、娛樂或電子商務等領域有深入其境的沉浸式體驗，在未來電動車發展上也會是重要的車電產品之一。

**技術摘要(含成果):**

透過基於光學系統設計的浮空影像光學元件，適當的柱型微結構使光源資訊能形成實像，呈現出具有深度的浮空影像效果。當浮空影像的實踐可使大眾在社交、娛樂或電子商務等領域有深入其境的沉浸式體驗。

**優勢:**

本專利技術可以藉由應用情境及解析度要求，進行不同尺度規格設計，透過成本較低的材料及製程進行加工，達到浮空效果。

**競爭產品:**

目前市面上有商售產品的公司分別有日商 Asukanet 其下的 ASKA3D 所製作的一系列 DCRA 產品，還有中國大陸安徽的東超科技公司所宣稱其下的 DCT-plate 產品也有相同的效果。

**專利現況:**

(1)本技術專利申請中

**聯絡方式(請不用填):**

臺大產學合作總中心
Tel: 02-3366-9945,　E-mail: ordiac@ntu.edu.tw

# Floating image optical device

**PI：** Prof. Jia-Han Li
Department of Engineering Science and Ocean Engineering, National Taiwan U.

**Experience:** http://homepage.ntu.edu.tw/~jiahan/

**Market Needs:**

This floating display technology with sensors can be applied in common places such as elevator buttons, vending machines, hospitals or clinics, etc.

Use floating display technology with floating operation to replace the touch interface of medical equipment and access control system or common flat display devices to achieve non-contact touch and control sensing, which can effectively avoid contact caused by contact with objects infection.

With this technology, lots of interfaces that are generally contacted by a large number of people, such as elevator buttons, vending machines, and cash machines, can also effectively reduce the connection between people, meanwhile reduce the probability of transmission chain formation, and reduce the risk of infection.

In addition, when the floating display technology is implemented in consumer electronic products, it is different from the traditional flat information because of the characteristics of deep image. Therefore, services such as video telephony, remote conferences and other business offices or movies, voice entertainment and other services can provide the public with an immersive experience.

When this floating image technology used in a car environment, unlike traditional head-up display, it can provide interactive floating real images in the car for intuitive operation by passengers so that passengers can have an in-depth immersive experience in social, entertainment or business fields. In the future development of electric vehicles, it will also be one of the important car electric products.

**Our Technology:**

Through the floating display optical device based on the optical system design, the appropriate columnar microstructure enables the light source information to form a real image, presenting a deep floating image effect.

**Strength:**

The patent can be designed with different scales and specifications according to the application and resolution requirements. Besides It can be manufactured through lower-cost materials to achieve a floating effect.

**Competing Products:**

the companies that have commercial products on the market include a series of DCRA products produced by Asukanet's ASKA3D, and the DCT-plate products of Dongchao Technology Co., Ltd. in Anhui, China, have the same effect.