

## 年會專題演講摘要

### 無人機科技發展趨勢與現況

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#### 摘要

無人機科技正快速推動全球產業與國防發展，應用領域橫跨物流運輸、農業監測、智慧城市、通訊中繼及災害救援。國際趨勢顯示，未來重點將集中於小型化、高續航力、自主飛行與群體協作，並結合人工智慧、感測融合及新一代通訊技術，形成地空一體化的智慧網路。台灣在此浪潮中具備獨特優勢：完整的半導體供應鏈、精密製造技術與資通訊產業，使台灣能在關鍵零組件及系統整合上發揮關鍵角色。同時，台灣在農業應用與災害應變的需求特性，提供了最佳的測試與應用場景，有助於推動在地創新並擴展國際合作，未來可望結合區域產業鏈，成為亞太無人機技術與應用的重要節點。學術界如何發揮豐沛的前瞻研發能量對於國內無人機自主發展更是不可或缺。

#### Abstract

Unmanned Aerial Vehicle (UAV) technology is revolutionizing global industries and defense systems, with applications that span logistics, agriculture, smart cities, communications, and disaster response. International trends indicate a strong emphasis on miniaturization, extended endurance, autonomous flight, and swarm coordination, while integrating artificial intelligence, sensor fusion, and next-generation communication technologies to create an intelligent, space-air integrated network. Taiwan holds distinctive advantages in this development wave. Its robust semiconductor ecosystem, precision manufacturing capabilities, and leading ICT industry position as a critical player in producing key components. Moreover, Taiwan's unique application scenarios—particularly in agriculture and disaster management—provide ideal testbeds for innovative solutions, fostering localized innovation while driving global collaboration. With these strengths, Taiwan is well-positioned to serve as a strategic hub in the Asia-Pacific region for UAV technology development and deployment, bridging international markets and enabling the next stage of unmanned systems evolution. How the academic community can exert its abundant forward-looking R&D energy is indispensable for the independent development of domestic UAVs.