

人工智慧與網路組

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主要研究方向:

- (1) 電腦通訊網路架構
- (2) 網路流量控制
- (3) 多媒體系統等
- (4) 新的網路技術與傳統網路的結合
- (5) 無線網路的架構

Main Research:

- (1) 5G's three major use cases
- (2) Enhanced Mobile Broadband
- (3) eMBB - High bandwidth
- (4) Massive Machine-Type Communication
- (5) mMTC - Massive IoT
- (6) Ultra-Reliable and Low Latency Communication
- (7) uRLLC - Low latency and high reliability

<http://ccn.ee.nsysu.edu.tw/>

Main Research

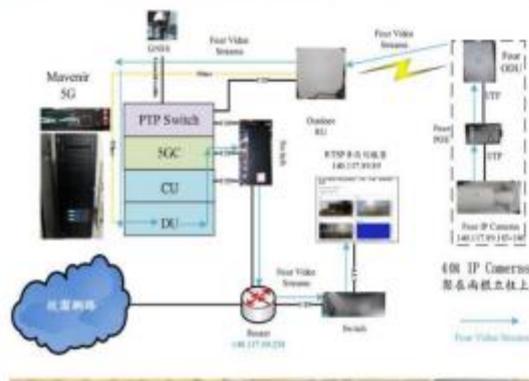
◆ 5G's three major use cases

- Enhanced Mobile Broadband
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 - mMTC - Massive IoT
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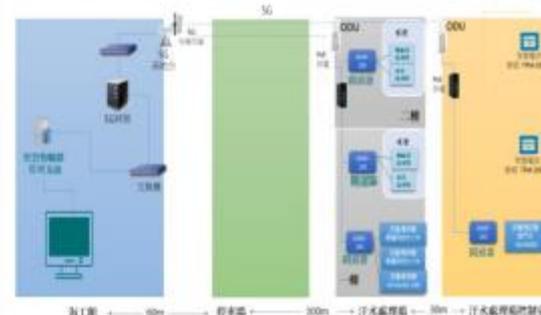
Highlight

Three 5G Campus Experimental Fields

Field I: 5G Intelligent Security Monitoring



Field II: 5G Intelligent Internet of Things (AIoT)



Field III: 5G Automatic Drone Cruising



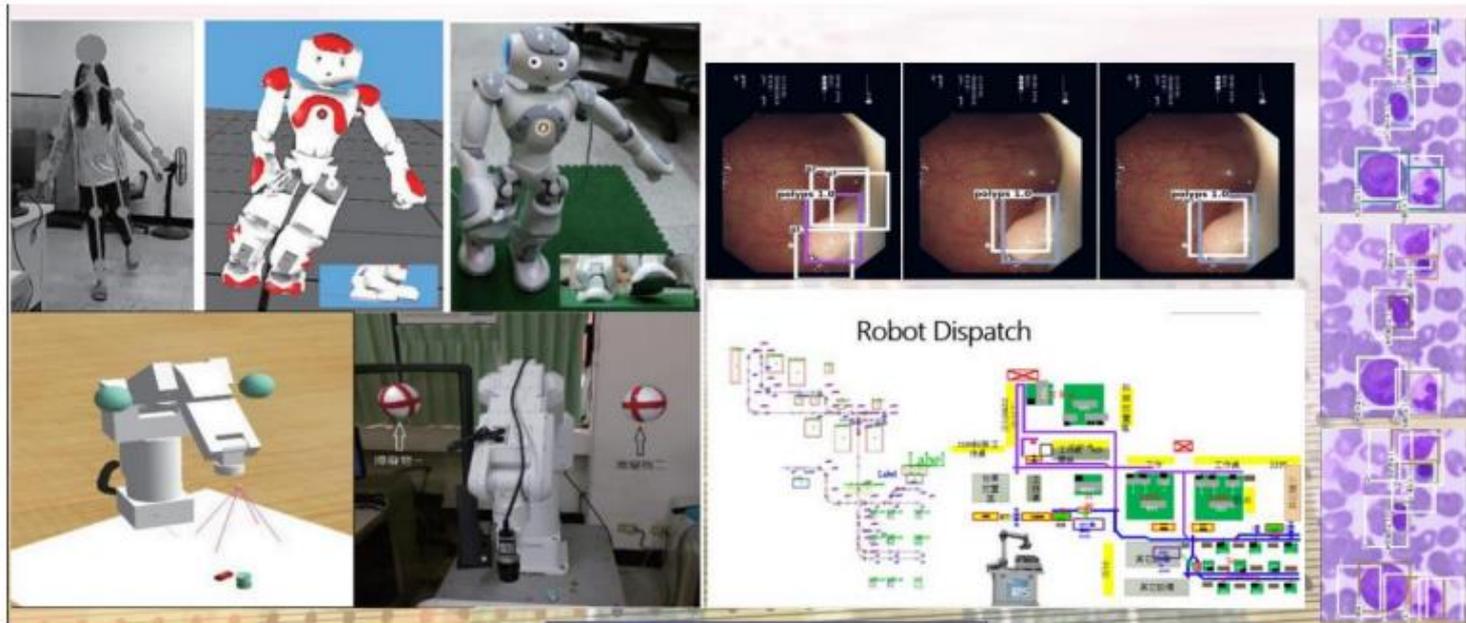
Cruising distance: 500 meters in bay area



Main Research:

- (1) Robotic Assistant Surgery
- (2) Cooperative Autonomous Multi-Agents
- (3) Assistant Robotics
- (4) Compliance Control
- (5) Deep Reinforcement learning on Medical Images
- (6) Deep Reinforcement learning on Factory Automation

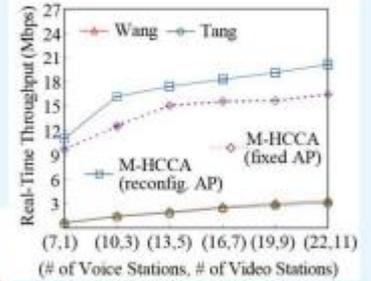
黃國勝



主要研究方向:

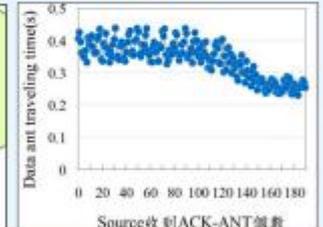
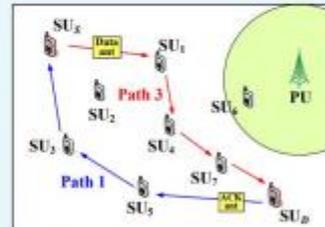
- (1) 無線網路：包含 wireless local area networks、wireless sensor networks、LTE-advanced cellular networks、wireless vehicular networks、cognitive radio networks.
- (2) 通訊協定 (結合「人工智慧」與「賽局理論」)：包含 media access control、routing、full duplex、quality-of-service、multimedia transmissions、power saving、network optimization.

Research Results on Multimedia and Quality-of-Service (QoS): design a new MAC protocol with QoS support for a WLAN with multi-beam access point (AP).



Our protocol has best performances.

Research Results on Artificial Intelligent Routing: design a new routing protocol based on any colony optimization (ACO) for multi-hop cognitive ad hoc networks.



using pheromone mechanism to find the fastest path

The time to find the fastest path is about the traveling time of 140 ACK-ants.

主要研究方向:

(1) 缺失數據分析

(2) 物聯網、嵌入式系統開發、低功耗機器學習模型

(3) 感測器網路訊號處理

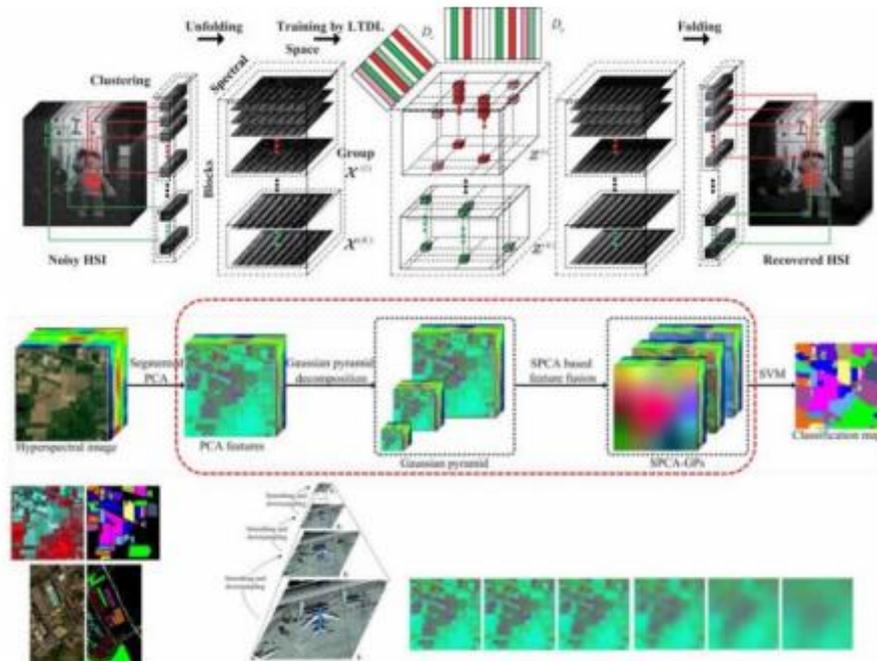
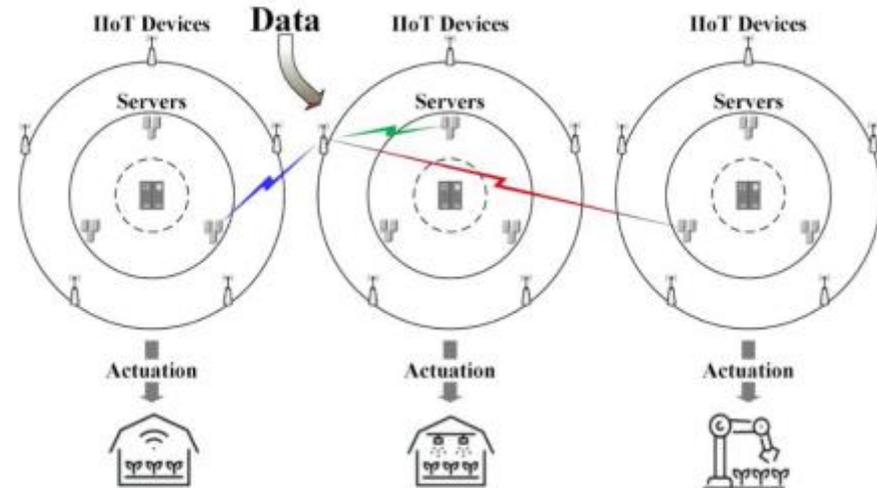
陳伯煒

Main Research:

(1) Incomplete data analysis

(2) Internet of Things (IoT) and embedded system designs

(3) Signal processing based on wireless sensor networks



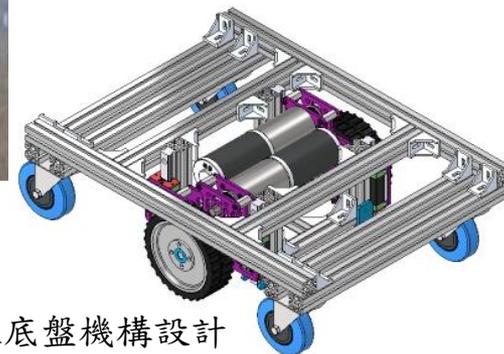
翁愷貽

主要研究方向：

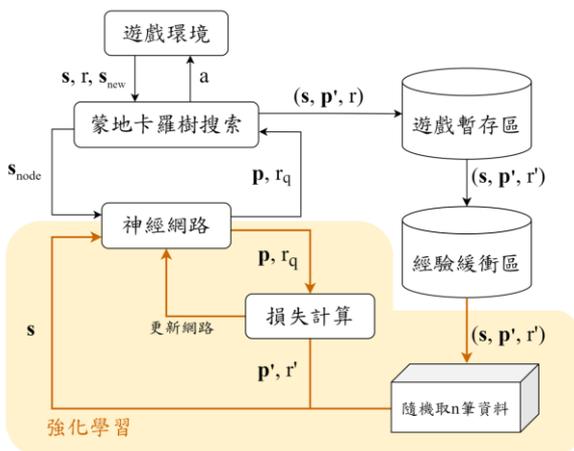
- (1) 自主移動機器人/跟隨機器人
- (2) 強化學習
- (3) 影像辨識

Main Research:

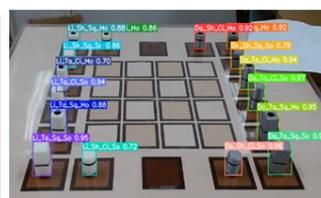
- (1) Autonomous Mobile Robot / Following Robot
- (2) Reinforcement Learning
- (3) Image Processing



機器人底盤機構設計



人機介面



棋子辨識



即時遊戲策略



TurtleBot3 AutoRace
自駕車挑戰賽