NTOU CSE 資訊工程學系 COMPUTER SCIENCE AND ENGINEERING

智慧型系統實驗室
Intelligent System Lab

研究主題

近年主要研究聚焦於深度學習技術及其在智慧養殖領域之應用。

實驗室成員

指導老師：張欽圳教授

碩士班研究生：8人

主要資訊設備

設備名稱	數量
個人電腦	17
筆記型電腦	4
GX10/DGX Spark	2
GPUs (RTX 5090*4, 4090*5, 3090*4, 3070)	14
Garmin CHRIP Imaging Sonar System	4
印表機/事務機	3
掃描機	1

近年研究計畫

年度	計畫名稱	委託機構
115	以農漁業副產物為核心的低碳水產養殖技術平台-建構結合One Health與淨零排放之新一代永續養殖模式	農業部
115	語義增強之影像分類與分割研究：從零樣本分類調適、主動式樣本選取到領域知識擴增	國科會
114	基於元學習、多實例主動學習之魚餵食水花切割神經網路 (2/2)	國科會
114	基於人工智慧與深度學習的智慧海洋養殖與環境監測技術開發	國科會
114	以農漁業副產物為核心的低碳水產養殖技術平台-建構結合One Health與淨零排放之新一代永續養殖模式	農業部
113	智慧化水產養殖投料機具及系統開發應用	漁業署
113	鱸魚精準餵食及養殖環境監測與智能生產決策系統研究與開發	漁業署
113	基於元學習、多實例主動學習之魚餵食水花切割神經網路 (1/2)	國科會
112	聲納智慧科技於多視角魚群密度分析(3/3)	國科會
112	智慧化水產養殖投料機具及系統開發	漁業署
112	鱸魚精準餵食及養殖環境監測與智能生產決策系統研究與開發	漁業署
112	智能化箱網養殖模式研究	漁業署
111	聲納智慧科技於多視角魚群密度分析(2/3)	國科會
111	智能化箱網養殖模式研究	漁業署
110	聲納智慧科技於多視角魚群密度分析(1/3)	國科會
110	智能化箱網養殖模式研究	漁業署

近年研究成果:專利

證書號	專利名稱
I799962	人工智慧養殖魚群食慾判斷方法與系統
I778762	智慧養殖魚隻數量估算方法及系統
I892930	智慧投餌強度辨識系統及方法

近年研究成果:期刊論文

[1] Yan-Qin Ni, Pei-Kai Huang, Ching-Han Yang, **Chin-Chun Chang**, Wei-Jen Wang, and Deron Liang, "Real-Time Defect Detection for Fast-Moving Fabrics on Circular Knitting Machine Under Various Illumination Conditions," in IEEE Access, vol. 13, pp. 139890-139903, 2025.

[2] Rekyan Regasari Mardi Putri, **Chin-Chun Chang**, Aditya Fitri Hananta Putra, Setyan Pamungkas, and Deron Liang,"SmartDetect: Safe Driving by Detecting Steering Wheel Handling with a Single Smartwatch," in IEEE Sensors Journal, Vol. 24, Issue 10, 2024. (SCI)

[3] Philip F. E. Adipraja, **Chin-Chun Chang**, Hua-Sheng Yang, Wei-Jen Wang, and Deron Liang, "Detecting Low-Yield Machines in Batch Production Systems Based on Observed Defective Pieces," in IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2024, DOI:10.1109/TSMC.2024.3374393. (SCI)

[4] Ida Wahyuni, **Chin-Chun Chang**, Hua-Sheng Yang, Wei-Jen Wang, and Deron Liang, "Multistage Parameter Optimization for Rule Generation for Multistage Manufacturing Processes," in IEEE Transactions on Industrial Informatics, Vol. 20, Issue 3, 2024, pp. 3857-3867. (SCI)

[5] **Chin-Chun Chang**, "Fisher's Linear Discriminant Analysis With Space-Folding Operations," in IEEE Transactions on Pattern Analysis and Machine Intelligence, vol.45, no.7, 2023, pp. 9233-9240, doi: 10.1109/TPAMI.2022.3233572. (SCI)

[6] **Chin-Chun Chang**, Naomi A. Ubina, Shyi-Chyi Cheng, Hsun-Yu Lan, Kuan-Chu Chen, and Chin-Chao Huang, "A Two-Mode Underwater Smart Sensor Object for Precision Aquaculture Based on AIoT Technology," Sensors 2022, 22, 7603. https://doi.org/10.3390/s22197603. (SCI)

[7] Anindita Suryarasmi, **Chin-Chun Chang**, Rania Akhmalia, Maysa Marshallia, Wei-Jen Wang, Deron Liang, "FN-Net: A lightweight CNN-based architecture for fabric defect detection with adaptive threshold-based class determination," Displays, vol. 73, 2022, 102241, https://doi.org/10.1016/j.displa.2022.102241. (SCI)

[8] Philip F.E. Adipraja, **Chin-Chun Chang**, Wei-Jen Wang, and Deron Liang, "Prediction of Per-Batch Yield Rates in Production Based on Maximum Likelihood Estimation of Per-Machine Yield Rates," Journal of Manufacturing Systems, vol. 62, 2022, pp. 249-262. (SCI)

[9] **Chin-Chun Chang**, Yen-Po Wang, and Shyi-Chyi Cheng, "Fish Segmentation in Sonar Images by Mask R-CNN on Feature Maps of Conditional Random Fields," Sensors, 2021, https://doi.org/10.3390/s21227625. (SCI)

[10] Naomi A. Ubina, Shyi-Chyi Cheng, Hung-Yuan Chen, **Chin-Chun Chang**, and Hsun-Yu Lan, "A Visual Aquaculture System Using a Cloud-Based Autonomous Drones," Drones, vol. 5, no. 4, 2021. https://doi.org/10.3390/drones5040109 (SCI)

[10] Naomi Ubiña, Shyi-Chyi Cheng, **Chin-Chun Chang**, and Hung-Yuan Chen, "Evaluating fish feeding intensity in aquaculture with convolutional neural networks," Aquacultural Engineering, Volume 94, August, 2021, 102178. (SCI)

[12] Rekyan Regasari Mardi Putri, Ching-Han Yang, **Chin-Chun Chang**, and Deron Liang, "Smartwatch-based Open-set Driver Identification by Using GMM-based Behavior Modeling Approach," IEEE Sensors Journal, 2020. doi: 10.1109/JSEN.2020.3030810. (SCI)