

智慧型系統實驗室

Intelligent System Lab

研究主題

近年主要研究機器學習與深度學習技術，及其應用於智慧養殖與智慧製造。

實驗室成員

指導老師：張欽圳
研究生：6人

近年研究計畫

年度	計畫名稱	委託機構
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
109	協同空間摺疊操作之費雪判別分析與事後混合判別分析(2/2)	國科會
109	智能化箱網養殖模式研究	漁業署
108	協同空間摺疊操作之費雪判別分析與事後混合判別分析(1/2)	國科會
107	低標示訓練樣本成本之機器學習演算法: 半監督式、主動式、遷移式學習	國科會

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

主要資訊設備

設備名稱	數量
個人電腦	13
筆記型電腦	4
伺服器電腦	2
GPUs (Titan RTX, RTX 4090*3, 3090*4, 3070, 2080 Ti, 1080 Ti)	11
CHRIP Imaging Sonar System	4
ZEDi Stereo Camera	2
印表機/事務機	3
掃描機	1

近年研究成果: 期刊論文

- [1] Ida Wahyuni, Chin-Chun Chang, Hua-Sheng Yang, Wei-Jen Wang, and Deron Liang, "Multistage Parameter Optimization for Rule Generation for Multistage Manufacturing Processes," to appear in IEEE Transactions on Industrial Informatics. <https://doi.org/10.1109/TII.2023.3312408> (SCI)
- [2] 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)
- [3] 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)
- [4] Anindita Suryarasmii, 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)
- [5] 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)
- [6] 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)
- [7] 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)
- [8] 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)
- [9] 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)
- [10] Chun-Chao Yeh, Ke-Jia Jhang and Chin-Chun Chang, "An intelligent indoor positioning system based on pedestrian directional signage object detection: a case study of Taipei Main Station," Mathematical Biosciences and Engineering, 2019, 17 (1), pp. 266-285. (SCI)
- [11] Jui-Yuan Su, Shyi-Chyi Cheng, Chin-Chun Chang, and Jing-Ming Chen, "Model-Based 3D Pose Estimation of a Single RGB Image Using Deep Viewpoint Classification Neural Network", Appl. Sci. 2019, 9(12), 2478; <https://doi.org/10.3390/app9122478> (SCI)
- [12] Chin-Chun Chang and Hsin-Ta Huang, "Automatic Tuning of the RBF Kernel Parameter for Batch-Mode Active Learning Algorithms: A Scalable Framework," IEEE Trans. on Cybernetics, Vol. 49, Issue 12, pp. 4460-4472, 2019. (SCI)
- [13] Chin-Chun Chang and Tzu-Ling Lee, "Fencing Tactics Analysis in Broadcast Video: a Point by Point Analytical System," IEEE Transactions on Circuits and Systems for Video Technology, Vol 29, Issue 7, pp. 2162-2175, 2019. (SCI)
- [14] Ching-Han Yang, Chin-Chun Chang, and Deron Liang, "A Novel GMM-Based Behavioral Modeling Approach for Smartwatch-Based Driver Authentication," Sensors, vol. 18, no. 4, 2018. (SCI)
- [15] Chin-Chun Chang, and Bo-Han Liao, "Active learning based on minimization of the expected path-length of random walks on the learned manifold structure," Pattern Recognition, vol. 71, pp. 227-358, 2017. (SCI)