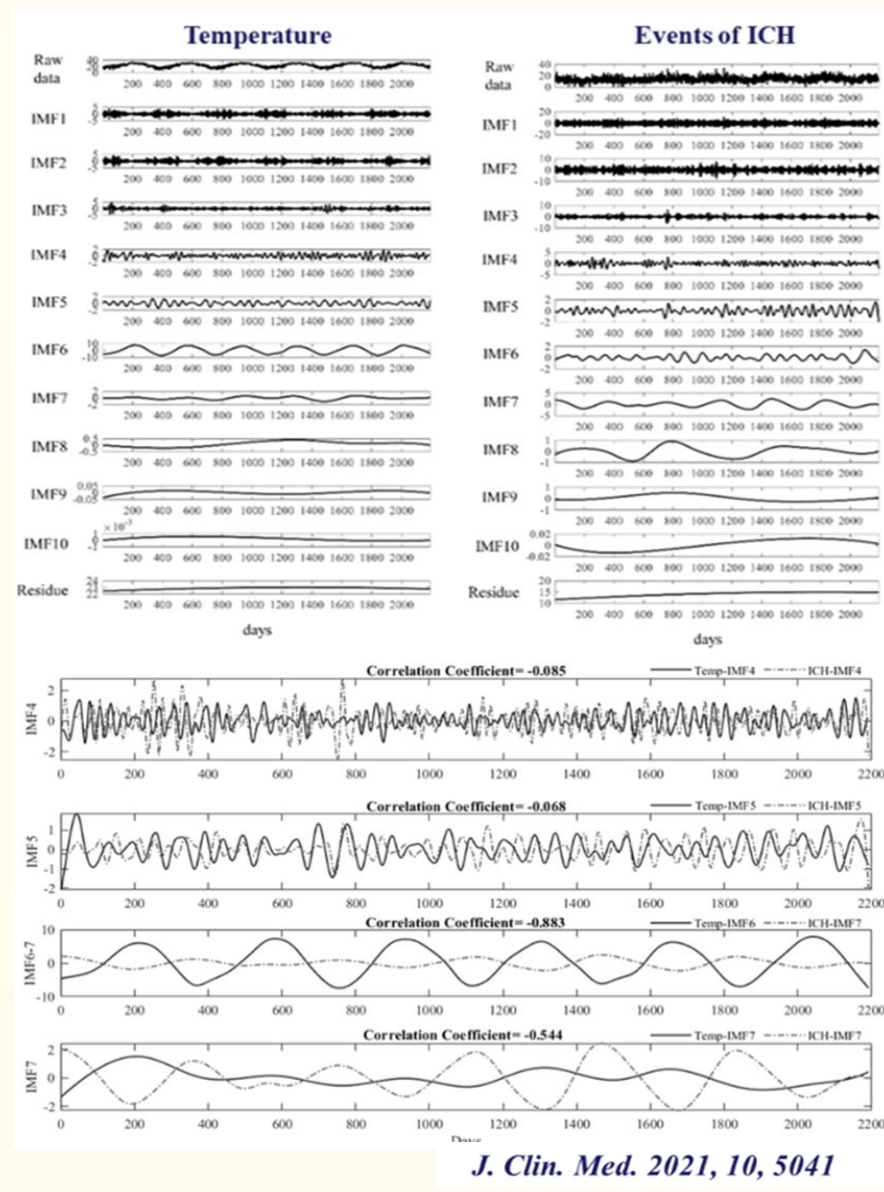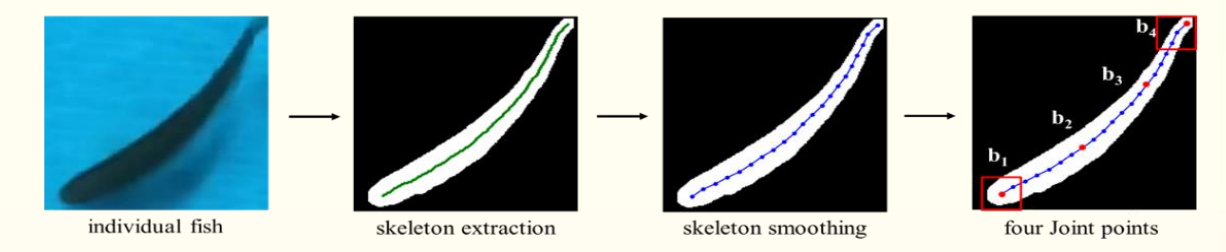# 訊號、影像與資料庫分析研究室

主 持 人： 劉安邦　　　　　　研究成員： 劉欣茹

研究簡介

Accessed Database

Physionet
• NHIRD
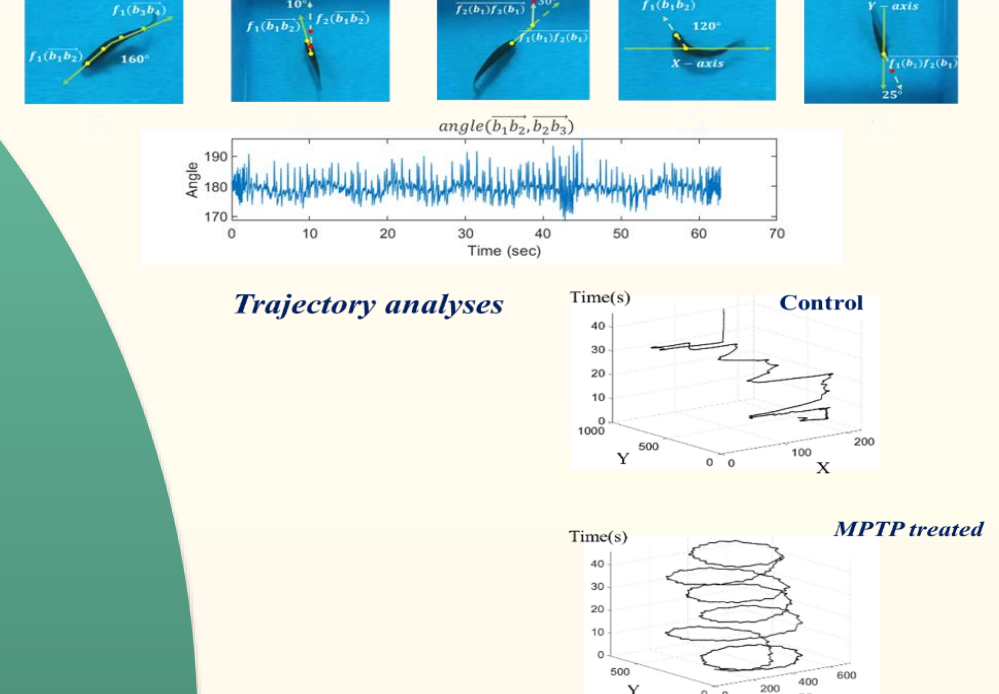• Meteorological database from the Central Weather Bureau
• Electrophysiology

Data and image processing
• EEMD (Ensemble Empirical Mode Decomposition)
• Denoising
• Poincaré plotting
• Convolutional neural network
• Machine learning
• Bigdata mining
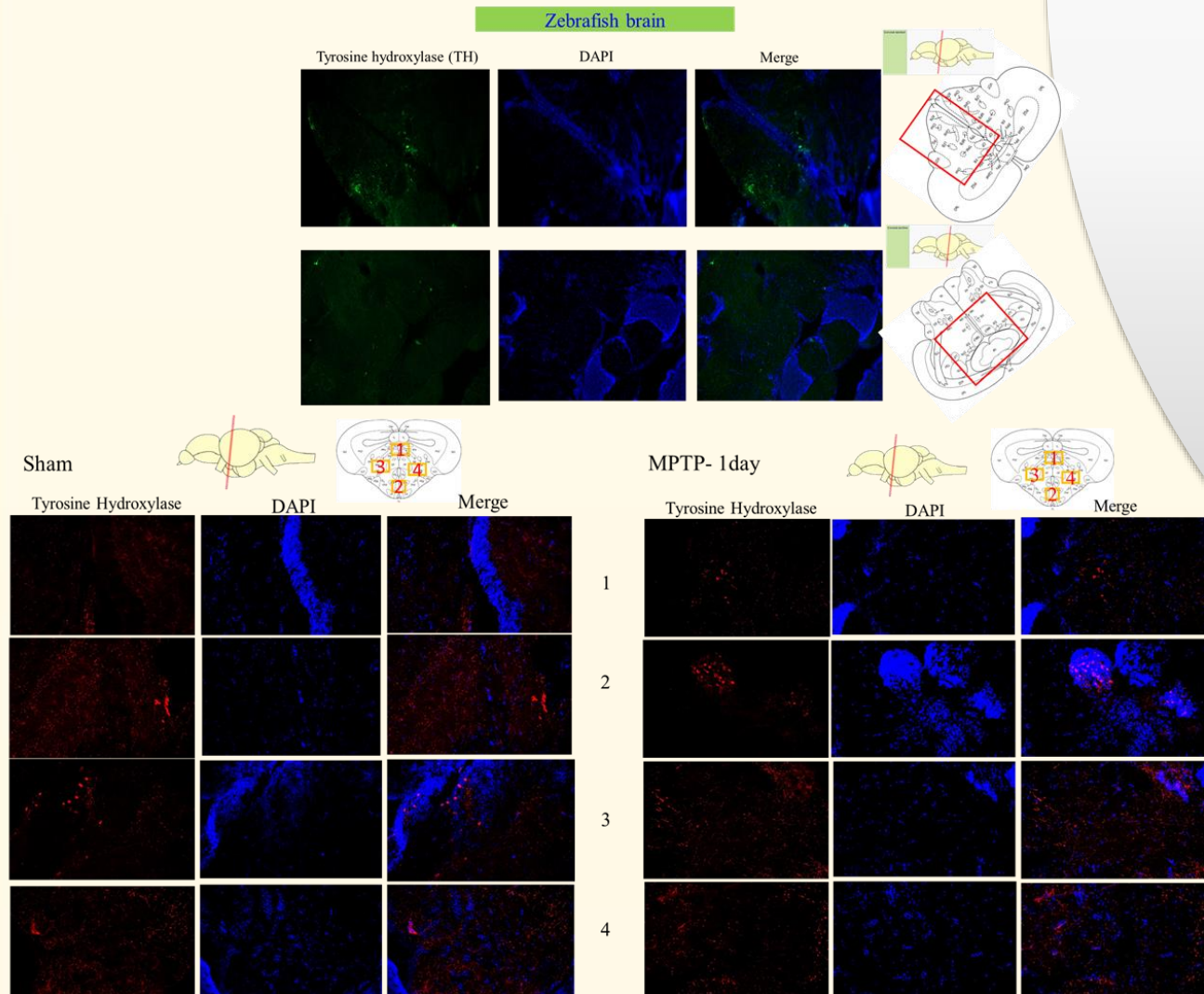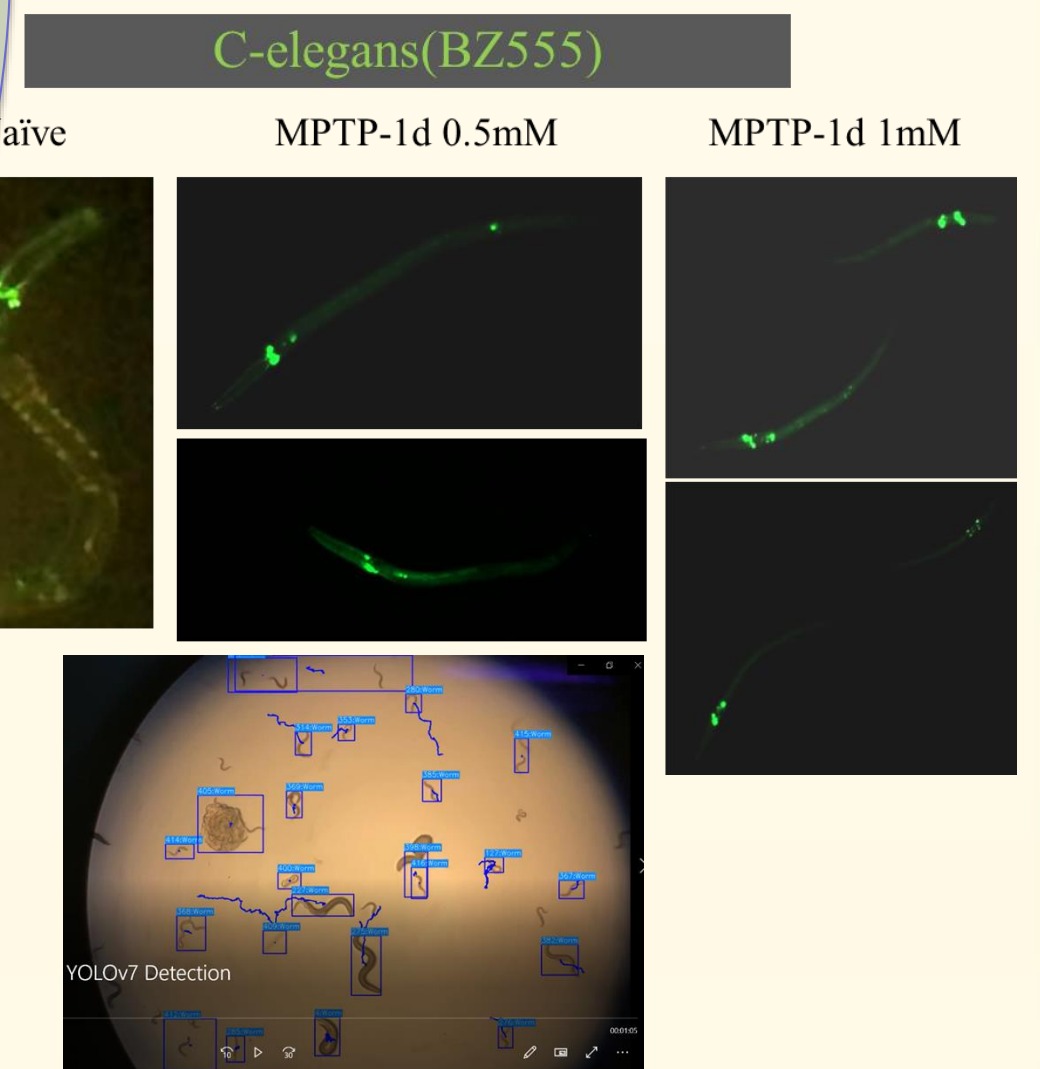• Fuzzy statistics
• YOLOv7 for object detection

Animal models
• *mdx* mice
• STZ induced diabetic WKY rats
• MPTP induced Parkinson's disease in Zebrafish
• MPTP induced Parkinson's disease in C. elegans

Animal
• *mdx* mice (C57BL/10ScSn-mdx/J; Jackson Laboratory, frozen embryos)
• Zebrafish
• *C. elegans*

Skeleton extraction (image processing)

Locomotor assessments (image processing and nonlinear analysis)

Trajectory analyses

C-elegans(BZ555)

J. Clin. Med. 2021, 10, 5041

計畫與經費來源

序號	計劃名稱	計畫內擔任之工作	執行期限	補助或委託機構
1	Rheological Properties of RBC Movement in Nail Bed Capillary under Video Capilloscopy. (TCRD 108-51)	主持人	2019/01/01~2019/12/31	慈濟醫院
2	The effect of temperature change on the incidence of stroke: A comparison between northern and southern Taiwan. (TCMF108-03)	主持人	2019/01/01~2019/12/31	慈濟醫院
3	Association between ischemic stroke and weather: a non-linear analysis study. (TCMF 110-05)	主持人	2021/01/01~2021/12/31	慈濟醫院
4	Effeteness and Safety Analysis of Novel Oral Anticoagulant -A Retrospective Analysis for the Factors Influencing Activated Partial Thrombin Time and Diluted Thrombin Time in Patients Taking Dabigatran. (TCMF-P- 111-11)	主持人	2022/01/01~2022/12/31	慈濟醫院
5	The application of nonlinear analyses of cardiovascular signals as prognostic indicators for hemorrhagic shock in rats. (TCRD 112-076)	主持人	2023/01/01~2023/12/31	慈濟醫院
6	Nonlinear Analysis of Locomotor Activity of Zebrafish with Drug-Induced Parkinson's Disease. (TCRD 112-003)	共同主持人	2023/01/01~2023/12/31	慈濟醫院

研究成果

序號	五年內(2019~迄今)代表性研究成果
1	Wei-Min Liu, Che-Lun Yeh, Po-Wei Chen, Che-Wei Lin and An-Bang Liu (2023, Sep). Keystroke Biometrics as a Tool for the Early Diagnosis and Clinical Assessment of Parkinson's Disease. Diagnostics, 2023, 13, 3061.
2	Jin-Yi Hsu, Peter Pin-Sung Liu, An-Bang Liu, Huei-Kai Huang, Ching-Hui Loh* (2022, Nov). Long-term risks of stroke in patients with type A aortic dissection: A nationwide cohort study.. J Am Heart Assoc., 11:22.
3	Febryan Setiawan, An-Bang Liu and Che-Wei Lin* (2022, Mar). Development of Neuro- Degenerative Diseases Gait Classification Algorithm Using Convolutional Neural Network and Wavelet Coherence Spectrogram of Gait Synchronization. IEEE Access, Digital Object Identifier, 10: 38137-38153.
4	Wei-Min Liu, Hsin-Ru Liu, Po-Wei Chen, Huai-Ren Chang, Chen-Mao Liao and An-Bang Liu* (2022, Mar). Novel Application of Multiscale Cross-Approximate Entropy for Assessing Early Changes in the Complexity between Systolic Blood Pressure and ECG R-R Intervals in Diabetic Rats. Entropy 2022, 24, 473.
5	Che Wei Lin, Po Wei Chen, Wei Min Liu, Jin Yi Hsu, Yu Lun Huang, Yu Cheng and An Bang Liu* (2021, Oct). Dynamic Changes and Temporal Association with Ambient Temperatures: Nonlinear Analyses of Stroke Events from a National Health Insurance Database. Journal of Clinical Medicine, 2021, 10, 5041.
6	Jin-Yi Hsu, Peter Pin-Sung Liu, An-Bang Liu, Huei-Kai Huang*, & Ching-Hui Loh*, (2021, May). High 1-year risk of stroke in patients with hepatocellular carcinoma: a nationwide registry-based cohort study. Nature portfolio. Scientific reports, 11:10444.
7	Jin-Yi Hsu, Peter Pin-Sung Liu, An-Bang Liu, Shu-Man Lin, Huei-Kai Huang, Ching-Hui Loh, (2021, Feb). Lower Risk of Dementia in Patients with Atrial Fibrillation Taking Non-Vitamin K Antagonist Oral Anticoagulants: A Nationwide Population-Based Cohort Study. J Am Heart Assoc. 2021;10:e016437.
8	Cheuk-Kwan Sun, Cyuan-Cin Liu, Wei-Min Liu, Hsien-Tsai Wu, Juay-Ming Huang and An-Bang Liu* (2020, Dec). Compatibility of Pulse-Pulse Intervals with R-R Intervals in Assessing Cardiac Autonomic Function and Its Relation with Risks of Atherosclerosis. Tzu Chi Medical Journal, 32(1): 41–46.
9	Po-Wei Chen, Chun-Keng Lin, Wei-Min Liu, Yu-Chen Chen, Sheng-Tzung Tsai, An-Bang Liu (2020, Aug). A Novel Assessment of Baroreflex Activity Through the Similarity of Ternary Codes of Oscillations Between Arterial Blood Pressure and R–R Intervals. Journal of Medical and Biological Engineering, 40, 727-734.
10	An-Bang Liu, Che-Wei Lin (2019, Sep). Multiscale Approximate Entropy for Gait Analysis in Patients with Neurodegenerative Diseases. Entropy, 21(10): 934

2024.06.18更新