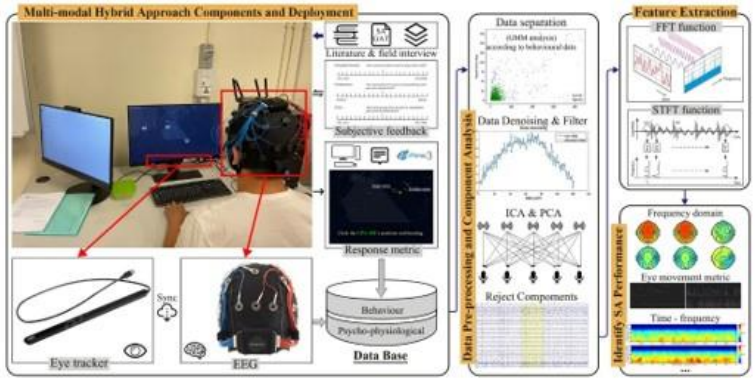
Aviation Engineering

THE HONG KONG POLYTECHNIC UNIVERSITY 香港理工大學
FACULTY OF ENGINEERING 工程學院
WHERE CONCEPTS BECOME REALITY

STUDY I: Evaluation of the deviation between the required and achievable situational awareness (SA) with respect to pupillometry, saccades, and fixation performance under air traffic control scenarios



An overview of the multi-modal hybrid methodological procedures for identifying different SA Statuses

STUDY II: Emission-aware adjustable robust flight path planning with respect to fuel and contrail cost

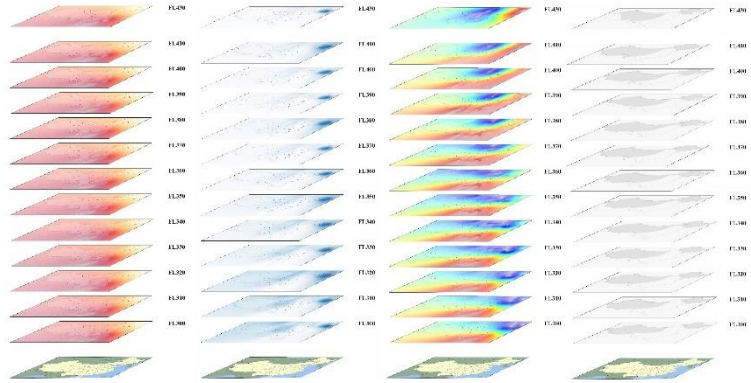
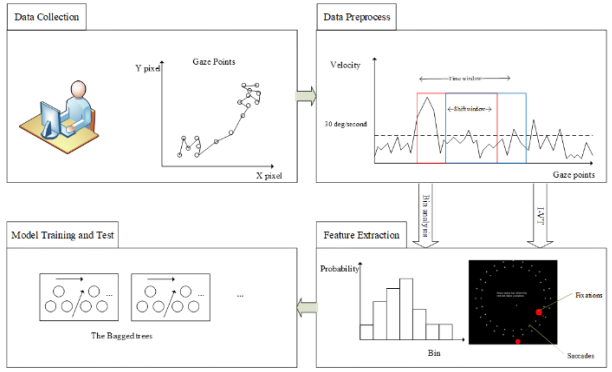
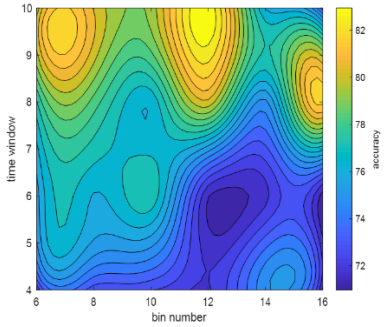


Illustration of spatial map at different flight levels (1st from the left: air pressure, 2nd from the left: relative humidity, 2nd from the right: temperature, 1st from the right: contrail)

STUDY III: Novel hierarchical eye-tracking data analytics and human fatigue assessment [1][2]





Major Research Facility: A320 FTD Flight Stimulator

Reference:
[1] **Li, F.,** Chen, C. H., Khoo, L. P. & Xu. G. (2020), Hierarchical Eye-Tracking Data Analytics for Human Fatigue Detection at a Traffic Control Centre, *IEEE Transactions on human machine system*.
[2] **Li, Fan,** Chun-Hsien Chen, Gangyan Xu, Li Pheng Khoo, and Yisi Liu. (2019). Proactive mental fatigue detection of traffic control operators using bagged trees and gaze-bin analysis. *Advanced Engineering Informatics*, 42, 100987.