

與國際導航界巨擘的對話

慣性導航科技

訓練課程暨工作坊

敬愛的貴賓 鈞鑒：

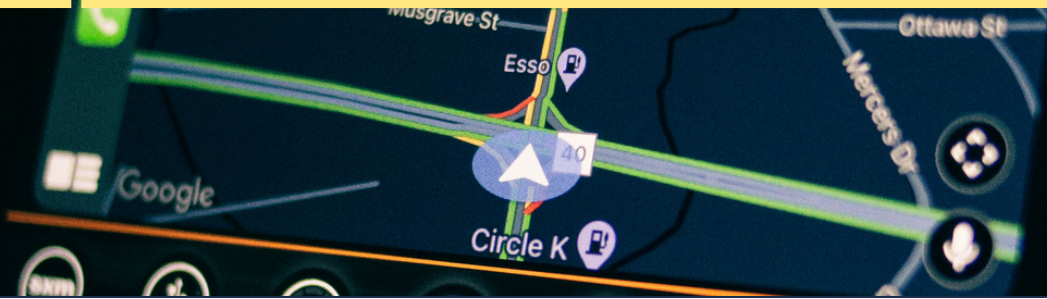
近年來自駕車為臺灣重點發展的項目之一，輔助自駕車上路運行以提升自駕安全性的關鍵要素，有賴於導航技術之開發與高精地圖之應用。今年本次活動共分成兩個主題，分別為2/21-2/22為期兩天的訓練課程，以及2/23一天的工作坊。在訓練課程方面，很榮幸邀請到國際導航界的巨擘，加拿大卡加利大學Prof. Naser El-Sheimy進行慣性導航科技授課。Prof. Naser El-Sheimy為加拿大Tier I 首席科學家，在多感測器系統整合、移動測繪系統、即時動態定位、及數位攝影測量等技術於交通、製圖、與地理資訊系統的應用做出巨大貢獻。在工作坊部分，邀請Prof. Naser El-Sheimy將與Micro Engineering Tech Inc. 的執行副總裁Dr. Mohamed Elhabiby，以及國內導航與高精地圖相關專家進行技術交流與實務經驗分享，期待透過工作坊的形式促進臺灣自駕車技術的蓬勃發展。本次活動將探討慣性導航科技、高精地圖經驗分享、與自駕車實務應用等相關議題，誠摯邀請您蒞臨參加。

活動相關資訊請參閱下述報名資料及官網。

	訓練課程	工作坊
時間	112年2月21-22日	112年2月23日
地點	成大會館3樓C廳	線上參與
繳費	\$1000元（學生\$500元）	免費
與會方式	實體	線上

訓練課程議程-D1

	February 21st (Tue.)
09:00 - 09:30	Registration Time
09:30 - 09:40	Speech Time
09:40 - 10:30	Introduction to Inertial Navigation • Principle of Inertial Navigation • Inertial sensors (Accelerometers and Gyroscopes)
10:30 - 10:50	Tea Time
10:50 - 11:40	Introduction to Inertial Navigation • Understanding Inertial Sensors Measurements
11:40 - 11:50	Break Time
11:50 - 12:40	Introduction to Inertial Navigation • Inertial Navigation Concept in 2D • Difference between ISA, IMU, and INS systems
12:40 - 14:00	Lunch Break
14:00 - 14:50	Inertial Sensor Errors • Inertial Sensors Errors • Effect of Inertial Sensor Errors on the Derived Navigation Parameters
14:50 - 15:00	Break Time
15: 00 - 15:50	Inertial Sensor Errors • Performance Characteristics of Inertial Sensors
15:50 - 16:10	Tea Time
16:10 - 17:00	Inertial Sensor Errors • Calibration of Inertial Sensors



訓練課程議程-D2

February 22nd (Wed.)

08:30 - 09:00

Registration Time

09:00 - 09:50

Modeling Motion using Inertial Data

- Mathematical notations in inertial navigation
- Vectors and rotation matrices representation
- Time derivatives of position, velocity, rotation matrices

09:50 - 10:10

Tea Time

10:10 - 11:00

Modeling Motion using Inertial Data

- Transformations between computational frames
- Modelling Equations in the Local-Level Frame

11:00 - 11:10

Break Time

11:10 - 12:00

Modeling Motion using Inertial Data

- Mechanization Equations in the Local-Level Frames
- Step by Step computation of the navigation parameters from the inertial sensor data

12:00 - 13:30

Lunch Break

13:30 - 14:20

Modeling INS errors by linear State Equations And Kalman Filtering

- Derivation of the inertial state dynamic error model
- Modelling Inertial Sensor Errors
- Understanding the error behavior of inertial systems

14:20 - 14:30

Break Time

14:30 - 15:20

Modeling INS errors by linear State Equations And Kalman Filtering

- Introduction to Kalman filtering for optimal error estimation
- Modeling INS errors by linear State Equations

訓練課程議程-D2

15:20 - 15:40	Tea Time
15:40 - 16:30	Modeling INS errors by linear State Equations And Kalman Filtering • Practical Issues for the implementation of update Measurements (ZUPT, CUPT, Integrated systems) • GPS/INS Integration Techniques

工作坊議程

	February 23rd, 2023 (Thu.)		
09:00 - 09:30	Registration Time		
09:30 - 09:40	Opening Ceremony		
09:40 - 10:30	Session 1	Navigation Technologies for Future Autonomous Vehicles	Prof. Naser El-Sheimy Professor of University of Calgary & Tier I Canada Research Chair
10:30 - 10:40	Break Time		
10:40 - 11:10	Session 1	Piloting Autonomous Vehicles with HD Maps: Current Progress and Unsettled Problems	Prof. Kai-Wei Chiang Professor of NCKU & Director of HD maps Center
11:10 - 11:20	Break Time		
11:20 - 11:45	Session 1	Accelerating Production of Self Driving Car HD Maps in Taiwan	Dr. Victor Lu R&D manager of ITRI
11:45 - 12:10	Session 1	Digital Twin :HDMAP production Development in Taiwan	Shin-Lin Tsai Vice President of RealWorld Surveying and Geomatics Corp.
12:10 - 13:30	Lunch Break		
13:30 - 14:20	Session 2	Gulo Gulo AI Sensor Fusion Solutions for Automated Vehicles and Infrastructure	Dr. Mohamed Elhabiby Executive Vice President of METI

工作坊議程

14:20 - 14:45	Session 2	Performance of GNSS+INS on Smart Phone and Telematics of Vehicle	Dr. Tsung-Yu Chiou Senior manager of MTK
14:45 - 15:10	Session 2	Dual-band low-power low-cost GNSS receiver	Justin Yang Senior manager of AIROHA
15:10 - 15:30	Tea Break		
15:30 - 15:55	Session 2	Auto-valet-parking: a special use case of self- driving	Steven Chuang Technical manager of oToBrite
15:55 - 16:20	Session 2	Map-Based Localization of Autonomous Vehicles Using existing ADAS Camera	Jon Su RD director of GallopWave
16:30 - 17:00	Panel Discussion / Closing Ceremony		

活動
官網



報名
網址



訓練課程

主辦單位



協辦單位



執行單位



工作坊

主辦單位



協辦單位



執行單位

