

100-1 大葉大學 選課版課綱

基本資訊

課程名稱	智慧型汽車之控制設計:TWN	科目序號 / 代號	1374 / EDR5180
開課系所	電機工程學系博士班	學制 / 班級	研究所博士班1年1班
任課教師	吳幸珍	專兼任別	專任
必選修 / 學分數	選修 / 3	畢業班 / 非畢業班	非畢業班
上課時段 / 地點	(二)34N / H371	授課語言別	其他

課程簡介

This course is to provide graduate student the systematic design of the automatic driving system embedded in the smart car Taiwan iTS-1. Taiwan iTS-1 is a heterogeneous system including various sensors, core controller, interfacing and mechanisms to carry out automatic driving. A hierarchical-control autonomy structure to achieve integrated longitudinal and lateral control on highway and urban-road environments. Upper-level control analyzes the traffic situation, determines a driving mode and reference signals. Vehicle-body control executes real-time control-signals tracking. Both human intelligence and behaviors are integrated into vehicle-body control. Collision warning and avoidance maneuvers are embedded in this car. Furthermore, passengers' comfort is also considered in design.

課程大綱

- I. Introduction
 1. Mastering Simulink
 2. Introduction to CarSim
 3. Vehicle Dynamics Simulation using CarSim
 - Scene Setup
 - Scene Setup
 4. Introduction to Automatic Driving System
- II. Autonomous Driving System
 5. Vehicle Overview
 6. Lane-keeping Design
 - ? Vision-based system
 - ? DSP-based system
 7. Lane-changing Design
 8. Car-following Design
 - ? ICC mode
 - ? ACC mode
 - ? Platoon mode
 - ? Stop-and-Go
 - . Driving Assistance System
 9. Collision Warning/Avoidance Maneuver

10. Comfort Estimation
11. Integrated Lateral and Longitudinal Controller
Final Examination (CarSim Demo)

基本能力或先修課程

no