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WP11: Collaborating with industry and community

Master program Update

Rafic Younes, Dean

Clovis Francis, Professor

Developing Curricula for Artificial Intelligence and Robotics (DeCAIR)
618535-EPP-1-2020-1-JO-EPPKA2-CBHE-JP



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The Faculty of Engineering

- Founded in 1980.
- 150 Full time Faculty members
- ~ 2500 students
- 400-450 graduates per year
- Parcoursup model : post Bac. Entrance exam of acceptance rate 18-20%

- Accreditation CTI

- Four departments:
 - Common Core (1035 students)
 - Civil Eng'g (640 students)
 - **Electrical Eng'g (350 students)**
 - **Mechanical Eng'g (435 students)**
 - Chemical and Petrochemical Eng'g (60 students)



- Research
 - 100 publications per year
 - 2200 citations per year
 - 9 Master programs
 - 50 Ph.D students

- International
 - 40 Partnership agreements
 - 150 students in mobility per year
 - 4 double degree Master programs

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Robotics and Intelligent Systems Master Program

Master degree in
Industrial Control
(M2RCI)

- Launched in **1999**
- Double degree with UTC-France
- Became M2R in Robotics and Intelligent Systems (M2R RSI) since **2016**
- **250** graduates

New update by
DeCAIR

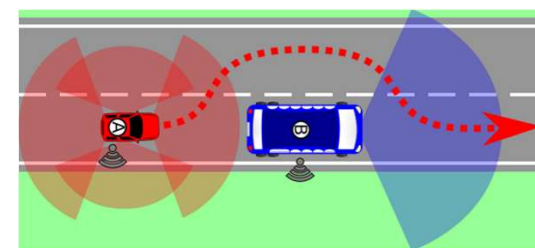
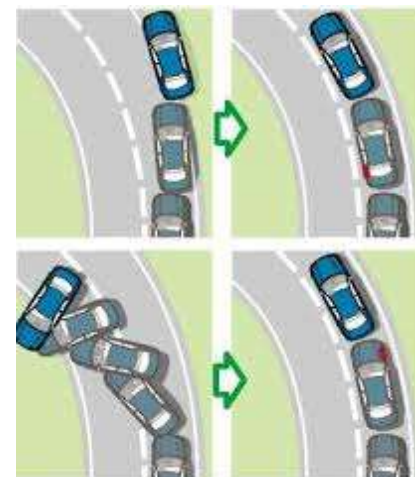


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Robotics and Intelligent Systems Master Program

- ✓ **Global Chassis Control, and control of autonomous vehicles in a multi-vehicle context**
 - Overall chassis control to improve stability, manoeuvrability, comfort and handling.
- **Trajectory planning and longitudinal/lateral coupled control in autonomous multi-vehicle cooperative manoeuvres.**





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Robotics and Intelligent Systems Master Program

- ✓ ***Fault tolerance for autonomous flying Robots (drones)***
- ***Propose hardware and software fault tolerance (FTC) mechanisms for autonomous drones.***
- ***FTC of the perception system and control laws.***



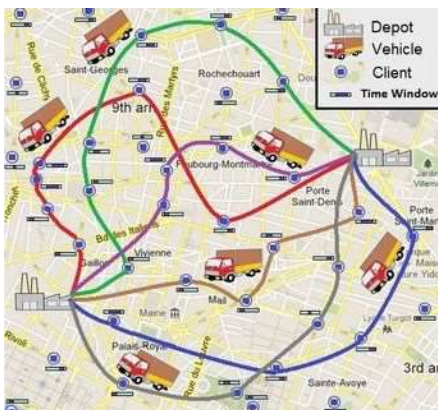


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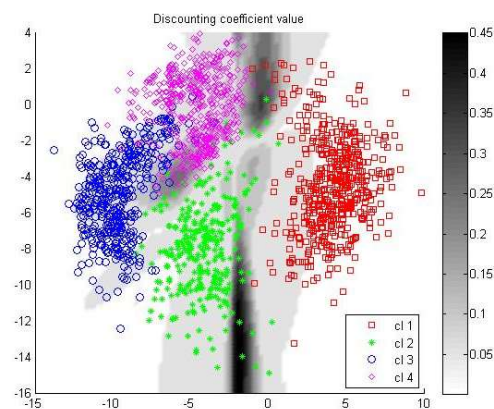


Robotics and Intelligent Systems Master Program

✓ *Vehicle touring problem*



✓ *Machine learning in the presence of uncertainties*



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Robotics and Intelligent Systems Master Program

| Module | New/Update | ECTS | Professor | University |
|---------------------------------------------------------------------------|------------|------|--------------------------------|------------|
| RSI01- Optimization | U | 4 | Rafic Younes | LU |
| RSI02- Advanced data Analysis | U | 4 | Fahed Abdallah | LU |
| RSI03- Identification, Observation and Control of Dynamics Systems | U | 5 | Clovis Francis Bilal Komati | LU |
| RSI04- Advanced Robotics | N | 4 | Hassan Shraim | LU |
| RSI05- Advanced Statistical Learning | U | 3 | Benjamin Quost | UTC |
| RSI06- Modeling and Optimization of Logistics Systems | | 3 | Dritan Nace | UTC |
| RSI07- Diagnosis and Fault Tolerant Control of Dynamics Systems | U | 4 | Hassan Noura Majd El Saeid | LU |
| RSI08- Non Linear control of Robotics Systems | U | 3 | Reine Talj | UTC |
| Total semester M2_1 | | 30 | | |
| Master Thesis M2_2 | | 30 | | |



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Course Update in BE Programs

| Module | Update/New | ECTS | Department |
|---------------------------|------------|------|----------------------------------------------------------|
| INFO 540: Computer Vision | U | 2 | BE- Electrical Engineering |
| ELEC313: Sensors and IOT | U | 2 | BE- Electrical Engineering BE- Mechanical Engineering |
| ELEC529: Robotics | U | 3 | BE- Electrical Engineering BE- Mechanical Engineering |



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Thank You



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UNIVERSITE LIBANAISE

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