Master's degree artificial perception & robotics

Robotics Is Currently One Of The Most Popular Topics, And Robots Have The Potential To Solve Complex Challenges In The Areas Of Transportation, Factories Of The Future, Agriculture, Medical Care, Production And Food Supply.

Mise en avant

This master's degree offers students a multidisciplinary education in the field of artificial perception and robotics. Students will learn how to model, design and control a robotic system in numerous applications, particularly in the specific context of intelligent and autonomous vehicles. This master's degree will improve the employment prospects of students by providing them with relevant theoretical knowledge and practical skills to become robotics engineering experts in their field. At the end of their course, students will:

- Master the scientific foundations of robotics (mechanics, automatic systems, artificial intelligence...)
- Apply the mathematical tools necessary to model robotic systems.
- Understand, identify and implement the numerical tools involved in robotics
- Capitalize on robotics in order to design complex intelligent systems.

L'essentiel

Nature de la formation

1

Lieu(x) de la formation

- Aubière

Admission

Pré-requis

Formation(s) requise(s)

Candidates should have or should be in the process of obtaining a Master 1 degree in the fields of robotics, automatic systems, computer science or signal processing. The selection process will be based on the examination of the application and the candidate may be invited to an interview.

Programme

Les informations ci-dessous sont données à titre indicatif et peuvent faire l'objet de mises à jour.

(30 hrs - 3 ECTS for each course)

1. Mathematic tools for Robotics
2. Modeling of Mechanisms, Machine and Robots
3. Control of robotic systems
4. Multi-sensory perception
5. Learning for robotics
6. Advanced Programming and ROS
7. Artificial vision
8. Driver Assistance System
9. French (common to all SFRI Graduate Tracks) Humanities
10. Humanities

Stage(s)

Stage(s)

Oui

Informations complémentaires sur le(s) stage(s)

During 4th semester: starting in march in an academic laboratory or private company in France or abroad.

Et après ?

Niveau de sortie

Année post-bac de sortie

● Bac +5

Niveau de sortie

● Level 7: Master's degree

Débouchés professionnels

Insertion professionnelle

The potential jobs for APR Master's students are related to public/private research and to engineering. Related fields include the automotive industry, aeronautics, space, transportation, medical, defence, materials, pharmaceutical industry, food industry, rail transport or chemistry.

Opportunities range from large multinational groups to start-ups, and include keeping with a PhD contract. Here are some examples of PhD theses recently carried out by APR Master's students:

- Evaluation of deep reinforcement learning methods for robotic exploration (ONERA / SIGMA Clermont collaboration)
- • Optimal traversability analysis for the safety of robot displacements (Université Laval (CANADA) / INRAE / Institut Pascal collaboration)
- Contributions to multisensory perception in a disturbed environment through deep learning (Institut Pascal / CEREMA collaboration)