Master in Computer Science, option Embedded and Connected Systems: Infrastructure and Software (SECIL)

UNIVERSITÉ TOULOUSE III PAUL SABATIER

Caracteristics

Geographic location(s)
Université Toulouse III - Paul Sabatier
Campus de Rangueil

Level of education
Master

Distinction
Computer science

Type of training
> Initial training
> Apprenticeschip
> Continuing education
> VAE

Accessible in
> Face-to-face teaching

Partner Institutions
IRIT

Contacts
Responsible teacher :
CASSE Hugues
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LAVINAL Emmanuel
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Accommodation capacity
28

Terms of access
> Graduate level in Computer Science
> Basic knowledge in architecture, systems and networks

Presentation

Embedded systems are ubiquituous and are permanantly growing around us. This Master aims to provide key skills to understand, manage, develop and setup embedded systems and the required computer infrastructure, from the the low level layers of architecture to systems and networks. The application domains encompasses mobile systems (automotive, aerospace and space) and the mass of IoT systems in the future smart cities.
SECIL (Embedded and Connected Systems: Infrastructure and Software) aims to train computer science ingineers specialized in the design, the development and the performance evaluation of embeded and connected computer systems and of the underlying soft and hard infrastructure. Targetted activities also encompasses testing, deploying, controlling, supervising and evolutivey maintaining of these systems and their application. The concerned systems may be ambiant, mobile, emebedded, distributed and real-time. SECIL also targets network and cloud infrastructure, the hardware of connected or embedded equipments and the application of IoT.
SECIL is an option of Computer Science Master and results from the fusion of options SIAME and iLoRD. Former formations and therefore SECIL benefit from a very-well integration in their socio-economics area made of big corporations devoted to transportation and communication, and innovating compagnies in embedded systems and IoT. This favourable environment provides to SECIL students a large panel of internships, alternance contracts and job opportunities.

Knowledge

> Integrating an organization and supporting its evolution: commitment and leadership, project management and team relationships
> Working in an international context: foreign language mastering
> Working with social values in mind: knowledge of social relationships, sustainable environment and development, ethics.

Program
Web site : https://secil.univ-tlse3.fr/

Prospects and professional integration

Statistics at 30 months:
> 96% permanent contract
> 96% executive
> 2200€ average wage
> 36% engineering, 20% development, 18% R&D, 16% industrial development

Skills

Major skills :
> Making use of resources of a large field of Computer Science
> Mastering methods and tools of engineer activities: identification and resolution of problems, collecting and exploitation of data, analysis and design of computer systems
> SIAME minor skills:
> Modelling, designing and analyzing ambiant/mobile/embedded/real-time computer systems from hardware to software and mastering corresponding tools
> Estimating the matching of an hardware platform to application constraints
> Autonomously understanding the work of an hardware component from the documentation
> Developing software components capable to interact with an hardware platform
> Estimating and analyzing performances of a computer system
> Estimating the social, societal, ethical and legal impact of ambiant applications

RSD minor skills :
> Designing, realizing, auditing and improving applications for virtualization, supervision and autonomous control of networks and distributed systems
> Designing, setting up and validating protocols or software architecture for communication
> Advocating and applying evaluation methodologies for performances of networks and communication services
> Understanding and improving the paradigm and the advanced technologies for network architecture and modern digital ecosystems like cloud and connected objects

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