

DÉPARTEMENT R&T, IUT - CAMPUS DES CÉZEAUX  
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## Gérard CHALHOUB, PhD, Habilitation

### Professional experience

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#### Academic positions:

- 2023/present    **Full Professor (*Professeur des Universités*)**  
*IUT Networking and Telecommunications of Clermont-Ferrand, Université Clermont Auvergne*
- 2016/2023      **Associate Professor (*Maître de Conférences, HDR*)**  
*IUT Networking and Telecommunications of Clermont-Ferrand, Université Clermont Auvergne*
- 2011/2016      **Assistant Professor (*Maître de Conférences*)**  
*IUT Networking and Telecommunications of Clermont-Ferrand, Université d'Auvergne*
- 2009/2011      **Temporary teaching and research assistant (full-time ATER)**  
*IUT Networking and Telecommunications of Clermont-Ferrand, Université d'Auvergne*
- 2007/2009      **Part-time teaching assistant**  
*IUT Networking and Telecommunications of Clermont-Ferrand, Université d'Auvergne*

#### Lecturer:

- 2022-            **Polytech, Aix Marseille University, France**
- 2022-            **Networking and Telecommunications department, IUT, La Rochelle University, France**
- 2009-2010,  
2017-2019      **CNAM Auvergne, CNAM Auvergne Rhône Alpes**

#### Invited Professor:

- 2015/present    **Université Saint Joseph (Mansourie, Lebanon)**
- 2011/2015      **University of Balamand (Koura, Lebanon)**
- 2010             **University Saint Esprit de Kaslik (Kaslik, Lebanon)**
- 2010             **Lebanese University (Tripoli, Lebanon)**

## Major research projects:

- 2019/Present **InDiD (CFE European research project)**  
*Objective of the project: deployment and study of advanced use cases for Cooperative Intelligent Transport Systems in Europe*  
*Role: study of enhanced perception of connected vehicles using wireless sensor networks and IoT nodes*
- 2019/Present **MobiS5 (ANR research project)**  
*Objective of the project: study of security and privacy issues in 5G mobile networks*  
*Role: study of security protocols for heterogeneous IoT devices*
- 2016/Present **C-ROADS (CFE European research project)**  
*Objective of the project: technology harmonization and deployment of Cooperative Intelligent Transport Systems in Europe*  
*Role: study of performance and efficiency of hybrid communication systems based on Cellular and ITS-G5 technologies*
- 2011/2016 **SAHARA (FUI research project)**  
*Objective of the project: conception of a network protocol stack for wireless sensor networks for deployment in aircraft*  
*Role: study, development and prototyping of a wireless sensor network protocol stack suitable for applications on board of aircraft*
- 2007/2010 **OCARI (national research project financed by the national agency of research of France)**  
*Objective of the project: conception of a deterministic and energy efficient network protocol stack for wireless sensor networks*  
*Role: study, development and prototyping of a wireless sensor network protocol stack suitable for industrial and nuclear facilities monitoring and control*

## Education

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- 2016 **Habilitation in Networking and Telecommunications (HDR)** Title "Enhanced communications in data collection multihop wireless sensor networks"  
*University of Auvergne, Clermont-Ferrand*
- 2009 **PhD in Computer Science** (Thesis title "MaCARI: A deterministic and energy efficient MAC protocol for wireless sensor networks")  
*École Doctorale des Sciences pour l'Ingénieur (Clermont-Ferrand, France)*
- 2006 **Master's degree: Models, Systems and Intelligence** (Major: Information System and Communications)  
*Blaise Pascal University (Clermont-Ferrand, France)*
- 2005 **Bachelor's degree: Information Systems**  
*Lebanese University (Tripoli, Lebanon)*

## Teachings

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Course title	Keywords	undergrad.	grad.
<b>Introduction to Pentesting</b>	Cybersecurity, Networking	X	
<b>Wireless sensor networks</b>	MAC and routing protocols	X	X
<b>Wireless local networks</b>	PHY aspects, MAC protocols, standards	X	X
<b>Network services and security</b>	DNS, DNSSEC, LDAP, SNMP, SMTP	X	X
<b>Network architecture and security</b>	firewalls, NAT, VLAN, VPN, Radius	X	X
<b>Linux Administration</b>	basic commands, scripting, basic services	X	X
<b>Introduction to Security</b>	algorithms, protocols, standards	X	X
<b>Intro. to Networking and Telecom.</b>	architecture, protocols, standards	X	X
<b>Deployment of wireless networks</b>	practical sessions, WiFi, security	X	X
<b>Local networks</b>	Ethernet, CSMA/CD, VLAN, STP, NAT	X	
<b>Programming</b>	C, C++, Sockets	X	
<b>Telephony over IP configuration</b>	Siemens, Aastra, Asterisk	X	

## Instructor certifications

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Certification	Field
Stormshield CSNA Instructor	Network security, Firewalls
Cisco CCNA 1 Instructor	Network administration, routing and switching
Cisco CCNA 2 Instructor	Network administration, routing and switching

## Supervision

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### PhD:

2022-	Ongoing PhD thesis of Guy Anthony Nama Nyam: "Wireless communications using Deep Reinforcement Learning"
2023-	Ongoing PhD thesis of Dorine Chagnon: "Path validation mechanisms for routing protocols"
2020-	PhD thesis of Ibrahim Sammour (defended on June 27th 2023): "Wireless communication optimization in ad hoc WiFi networks dedicated for Smart Farming"
2018-2023	PhD thesis of Ali Mamadou Mamadou (defended on March 21st 2022): "Resource mutualization in the context of smart cities"
2017-2021	PhD thesis of Mouna Karoui (defended on April 29th 2021): "Hybrid vehicular communications optimization for Collaborative Intelligent Transport Systems"
2015-2019	PhD thesis of Jinpeng Wang (defended on July 2nd 2019): "Impact of mobility and disturbance on industrial wireless sensor networks"
2014-2018	PhD thesis of Hamadoun Tall (defended on May 14th 2018): "Load balancing in a multi-channel wireless sensor network"
2011-2015	PhD thesis of Rana Diab (defended on June 15th 2015): "HMC-MAC: Hybrid Multi-Channel MAC protocol for wireless sensor networks"
2010-2013	PhD thesis of Ismail Mansour (defended on July 5th 2013): "Contribution to security in wireless sensor networks"

### Interns:

2020	Master thesis of Mohamad Rahal: "Deployment study of 868 MHz receivers dedicated for people with special needs"
2018	Master thesis of Ali Mamadou Mamadou: "Study of interference models between heterogeneous technologies in network simulators"
2018	Master thesis of Mahdi Sharara: "Impact of network performance on GLOSA application for C-ITS"
2011	Final project engineer thesis of Antoinette Mouawad: "Mobility management in hierarchical wireless sensor networks"
2011-2012	One-year internship of Kevin VERNY with collaboration of EDF (Electricity of France): "Study of co-existence in the 2.4 GHz frequency band"

## Administrative responsibilities

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### Teaching:

- 2022- Co-Head of the Cybersecurity courses of the Bachelor of Technology of Networking and Telecommunications departments of IUT of France
- 2020-2021 Head of the Internet of Things and Mobility courses of the Bachelor of Technology of Networking and Telecommunications departments of IUT of France
- 2021- Head of the professional Bachelor degree in Network Administration and Security of the department of Networking and Telecommunications of IUT of University Clermont Auvergne
- 2017-2021 Director of studies at the department of Networking and Telecommunications of IUT of University Clermont Auvergne
- 2015-2019 Head of International Relations at the IUT of University Clermont Auvergne
- 2009- Member of the Networking and Telecommunications department council of IUT of Clermont-Ferrand

### Research:

- 2016- Co-head of Networks and Security group at LIMOS laboratory
- 2016- Associate Editor of International Journal of Wireless Information Networks
- 2016-2019 Principal investigator in research collaborations with CNES for deploying WSNs in aircraft
- 2014 International Expert for the PhD thesis of Leovigildo Sanchez Casado: "Anomaly-based multi-layer intrusion detection for MANET environment", University of Granada, Spain
- 2012 Head of study of different industrial wireless sensor networks technologies in collaboration with EXERA France
- 2012- TPC member of WINSYS22-21-20-19-18-17-16-15-14, PEMWN23-22-21-20-19-18-17-16, WCCS14, PIMRC12, ICCS12
- 2011- Co-chair of the program committee of MNE3SD23-22, Co-chair of the program committee of ICWCUCA 2012, Member of the organization committee of JNCTT 2011
- 2008-2011 Head of prototyping of OCARI network stack in collaboration with EDF France during 2008-2011
- 2007-2012, 2016- Member of the LIMOS laboratory scientific council

## Publications

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**26 articles in international journals** (Annals of Telecom., Electronics, Journal of Sensors and Actuators Networks, Network Protocols and Algorithms, Future Internet, Acta Astronautica, Journal of Telecommunications, Journal of Networks, Ad Hoc & Sensor Wireless Networks)

**3 book chapters** (Wiley, CRC Press, Springer)

**52 papers in international conferences and workshops** (LCN, IWCNC, ICC, WCNC, VTC, PIMRC, ICNSC, iThings, PE-WASUN, Ad-Hoc Now, WiSEE, etc.)

**8 papers in French national conferences and workshops**

**4 papers in the Workshop of Networking and Telecommunications departments of France (2010, 2014, 2018, 2023)**

## Awards, honors and distinctions

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**Distinction for research and supervision 2019-2023**

**Best paper award at Nets4Cars Nets4Train Nets4Aircraft 2019**

**Best paper award at PEMWN 2017**

**Best paper award at PEMWN 2015**

**Distinction for newly appointed assistant professors 2013-2014**

**Best paper award at PEWASUN 2011**

**French National Agency of Research grant during PhD preparation 2007-2009**

## Technical skills

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Certifications	Stormshield CSNA, Stormshield CSNE, Stormshield CSNAI, Cisco CCNA 1&2
Network Simulators	NS2, NS3, packet tracer, Cooja, TOSSIM, OPNET
Programming	C, C++, Perl, shell, AWK, HTML, nesC, VB
Embedded systems	TinyOS, Contiki
Version control tools	git, vnc
Editors	Latex, OpenOffice, MS Office
Operating systems	Unix, Windows

## Extracurricular activities

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Languages    Arabic (mother tongue), French (Fluent), English (Fluent)

Music        Bass guitar player

Sports        Aikido (*Black belt (1st dan) from the Japanese Aikikai in 2021*)  
Football, swimming, billiard, volley ball