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## Gérard CHALHOUB, PhD

### Professional experience

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#### Academic positions:

- 2016/Present **Associate professor (*Maître de Conférences, HDR*)**  
*IUT Networking and Telecommunications of Clermont-Ferrand*
- 2011/2016 **Assistant professor (*Maître de Conférences*)**  
*IUT Networking and Telecommunications of Clermont-Ferrand*
- 2009/2011 **Temporary teaching and research assistant (full-time ATER)**  
*IUT Networking and Telecommunications of Clermont-Ferrand*
- 2007/2009 **Part-time teaching assistant**  
*IUT Networking and Telecommunications of Clermont-Ferrand*

#### Invited Professor:

- 2010/present **Lebanese University (Tripoli, Lebanon), Université Saint Joseph (Mansourie, Lebanon), University of Balamand (Koura, Lebanon)**

#### Major research projects:

- 2016/Present **Participation in C-ROADS (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 **Participation in 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 **Participation in 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 **Information systems**  
*Lebanese University (Tripoli, Lebanon)*

## Supervision

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### Co-supervision:

- 2017- Ongoing PhD thesis of Mouna Karoui: "Hybrid vehicular communications optimization for Collaborative Intelligent Transport Systems"
- 2015- Ongoing PhD thesis of Jinpeng Wang: "Impact of mobility and disturbance on industrial wireless sensor networks"
- 2014- Ongoing PhD thesis of Hamadoun Tall: "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"

### Supervision:

- 2011 Final project 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"

## Research and administrative responsibilities

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Head of Sensor Networks topic at LIMOS laboratory

Associate Editor of International Journal of Wireless Information Networks

Director of studies at the department of Networking and Telecommunications of IUT of University Clermont Auvergne

Head of International Relations at the IUT of University Clermont Auvergne

Principal investigator in research collaborations with CNES for deploying WSNs in aircraft

Head of study of different industrial wireless sensor networks technologies in collaboration with EXERA France in 2012

Head of prototyping of OCARI network stack in collaboration with EDF France during 2008-2011

TPC member of WINSYS17-16-15-14, PEMWN17-16, WCCS14, PIMRC12, ICCS12, Co-chair of the program committee of ICWCUCA 2012, Member of the organization committee of JNCTT 2011

Co-responsible for the establishment of a collaboration between Université d'Auvergne of France and University of Balamand of Lebanon

International Expert for the PhD thesis of Leovigildo Sanchez Casado: "Anomaly-based multi-layer intrusion detection for MANET environment", University of Granada, Spain

Head teacher of the network courses at the Networking and Telecommunications department of IUT of Clermont-Ferrand

Member of the LIMOS laboratory scientific council

Member of the Networking and Telecommunications department council of IUT of Clermont-Ferrand

## Publications

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

**2 book chapters** (Wiley, CRC Press)

**34 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**

## Teachings

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

## Awards, honors and distinctions

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

**Best paper award at PEWASUN 2011**

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

**Best paper award at PEMWN 2015**

**Best paper award at PEMWN 2017**

## Technical skills

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|-----------------------|---|
| 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 (*IKKYU certificate from the Japanese Aikikai in 2003*)  
Football, swimming, billiard, volley ball