PERSONAL INFORMATION

Karel Heurtefeux, Ph.D.

📍 Emil-Nolde-Straße 13, 81735 München, Deutschland

📱 +49 176 43 87 39 18

✉️ heurtefeux@gmail.com

💬 Skype ID: heurtefeux

MAIN AREAS OF EXPERTISE

- **Embedded systems**: Embedded programming for connected vehicles and wearable devices.
- **Telecommunications and Networks**: Wireless networks, CAN, Machine-to-Machine (M2M), Sensor networks, Internet of Things, communication protocols
- **Performance Evaluation, Modelling and standardization**: Prototypes implementation, Simulation, Experimentation, Proof-of-concept with hardware implementation;
- **Programming Languages**: C/C++/C#, JAVA, Python, Matlab, R, HTML, PHP

WORK EXPERIENCE

From September 2016

Automotive Industry

Research Engineer (E-Mobility and Connected Cars)
BMW / Ferchau Engineering, München, Germany

- Communication protocols for BMW connected vehicles.
- Implementation and evaluation of wireless communications for electric cars.
- Wireless power transfer standardization for electric car (ISO 15118, IEC 61980, etc.).

From June 2015 to December 2015
Academic Research

Research Scientist (Embedded Systems and Robotic)
Carnegie Melon University & Qatar University , Doha, Qatar (www.qatar.cmu.edu & www.qu.edu.qa)

- Unmanned Aerial Vehicles (UAVs) embedded algorithms for visual localization and vehicles tracking.
- Vehicle coverage and tracking modelling and optimization for UAVs.

From June 2012 to May 2015

Research & Development

Research Scientist (Embedded and Wearable Systems)
Qatar Mobility Innovations Center, Doha, Qatar (www.qmic.com)

- Real-time and energy-constrained algorithms and communication protocols for wearable medical devices
- Smart parking application for connected vehicles
- Indoor-localization in buildings and vehicle.
- Project Management, proposal writing and obtaining funding, subsidies for research projects

From March 2010 to June 2012

Academic Research

Postdoctoral Researcher (Wireless Communications)
CNRS/Verimag Laboratory, Grenoble, France (http://www-verimag.imag.fr)

- Self-stabilizing properties in distributed systems, energy modelling and Security in Wireless Sensor Networks.
- Wireless Sensor Networks protocols (RSSI-based localization, MAC and routing layers) with real-world deployment.

From January 2012 to June 2012

Academic Teaching

Teaching Assistant
Engineering School PolyTech, Grenoble , France (www.polytech-grenoble.fr)

- Lectures on Digital Communication & Final internship supervision
- Mark examination scripts

From October 2006 to December 2009

Research & Development Sector

Research Engineer, PhD (Wireless Communications)
CITI Laboratory, INSA de Lyon, Lyon, France (www.citi-lab.fr/)

- Sensor platforms deployment: develop and deploy robust routing protocols dedicated to energy-constrained wireless sensor networks

From September 2006 to December 2009

Academic Teaching

Teaching Assistant
Telecommunication Department, INSA de Lyon, France (https://telecom.insa-lyon.fr/)
Computer Science Department, Université Claude Bernard Lyon 1, France (www.univ-lyon1.fr)

- Lectures on JAVA & C/C++ programming, WEB programming, Markov Chains, Network architectures and protocols, Operating System
- Lectures and supervise practical work on Database and SQL
- Mark examination scripts

EDUCATION

From 2006 to 2009 — Ph.D., Telecommunications

INSA de Lyon, CITI Laboratory (Lyon, France)

- Self-organization and localized Protocols in Wireless Sensor Networks with a focus on energy-efficient and realistic MAC and Network layers.
- Develop and deploy robust routing protocols dedicated to Energy-constrained Wireless Networks
- Draft, review and present scientific documents such as international conference and journal papers and posters, project reports and deliverables.

From 2004 to 2006 — MSc, Telecommunications and Computer Science

INSA de Lyon (Lyon, France) and Université Claude Bernard Lyon I (Lyon, France)

- C and Java programming
- Cryptography, Systems Security and Safety
- Embedded Systems
- Wireless and advanced Networks
- Quality of Service
- Distributed Systems and Grids
- Future Networks
- Signal Processing and Digital Communication

From 2000 to 2004 — BSc, Computer Science and Mathematics

Université Claude Bernard Lyon I (Lyon, France)

- Mathematics (Algebra, Matrix analysis, etc.)
- Physics (Thermodynamics)
- Networks
- Algorithmic and C Programming
- Operating Systems
- Law study, Economics and English

PERSONAL SKILLS

Languages
- **French** (mother tongue), **English** (fluent), **German** (intermediate, in progress, B2)

Communication skills
- Good oral and writing communication skills in English gained through my experience as Research Scientist in an International context (more than 3 years in Qatar and 1 year in Germany) and during my professional experience.
- Excellent oral and writing communications skills in French gained through my experience as Teaching assistant in 2 High-level Engineering School (INSA de Lyon and PolyTech' Grenoble).

Job-related skills
- Strong experience in the field of embedded system applications and algorithms acquired as Researcher at Ferchau (wireless communications for BMW electric cars), at QU (UAV embedded algorithms for vehicles tracking) and QMIC (wearable medical devices and smart parking application)
- Good knowledge of in-vehicle networks and architecture gained as Research engineer at Ferchau (Implementation and evaluation of communications for BMW electric cars (CAN, Wi-Fi, NFC/RFID))
- Strong and practical experience in embedded software development.
- Good writing, drafting and reviewing skills (scientific publications, deliverables and reports)

Computer skills
- **Embedded hardware and resource constrained devices**: Shimmer Wearable Sensor Technology, WSN430, Iris mote, Hackberry, Beagleboard, Beaglebone, Raspberry PI and Intel Edison;
- **Development and simulation tools**: GCC (arm-gcc), GDB (arm-gdb and JTAG), Make, Cmake, Git, Jenkins, Eclipse IDE + Android Developer Tools, Arduino IDE, Matlab, VectorCANoe.
- **Programming languages**: C/NesC, C++, Java, Python, Matlab, Javascript (Node.js), PHP
- **Communication protocols**: RPL, IPv6, 6loWPAN, Zigbee, Bluetooth (2.0, Smart/LE/4.0), Wi-Fi, NFC/RFiD, CAN.
- **Embedded Operating System**: Unix/Linux distributions, TinyOS, Contiki, Genivi, Yokto
- **Data Science and Data Bases**: R, MySQL, Access, SQL server

Organisational / managerial skills
- Leadership and good managerial skill gained as:
  - Research Scientist at Qatar University and Carnegie Mellon supervising 2 research assistants for prototyping micro-UAVs testbed;
  - Principal Investigator for an international project called "Scalable Multimedia Multicasting Mobile Solutions for Smartphone Users in Dense Environments" with 3 research assistants and
  - Key investigator for an international project call SuWBAN with 1 research assistant