

# Hamid Meghdadi

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**Date of birth:** 26 April 1980

**Place of birth:** Tehran

**Nationality:** Iranian

**Tel:** -

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## Education

### **Ph.D. in Electronics and telecommunications**

**University of Limoges/France**

**Period:** October 2007 – December 2011

**Dissertation:** Cooperative beamforming in multiuser relaying schemes

**Abstract:** The demand for high speed reliable communication systems will never stop increasing. Many challenges face researchers trying to provide such systems and schemes. Cooperative networks have been successfully used to enhance the performance of telecommunication systems. Among different cooperative strategies, distributed cooperative relaying has shown to be a promising scheme. This dissertation addresses the problem of optimizing the precoding vectors in order to improve the system performance of multi-user multi-relay cooperative networks. Precoding vectors are used to cancel out the multiple access interference, maximize the signal to noise ratio at the destination, and optimize the power allocation at relaying stations.

### **M.Sc. in High frequency electronics and optics**

**University of Limoges/France (2007)**

**Dissertation:** Analog implementation of error control decoders

**GPA:** 15.39 (rank: 1)

### **Eng. diploma in Electronics, telecommunications and instrumentation**

**ENSIL/France (2007)**

**GPA:** 14.90 (rank: 1)

**Projects:**

**3<sup>rd</sup> year:** Measurement of the noise and line impedance for PLC applications

**2<sup>nd</sup> coop:** Development of an RFID tag for Steller sea lion pups

**2<sup>nd</sup> year:** HFSS Simulation of a resonant cavity with a capacitive via

## Teaching Experience

### B.Sc. in Electronics engineering

University of Semnan/Iran (2003)

**Dissertation:** Acoustic noise cancelation

**GPA:** 14.48 (graduated in the Top 10%)

During 1 year of ATER (attaché temporaire d'enseignement et de recherche) and 3 years of TA:

Title	Public	Description
<b>Analog electronics lab.</b>	Bac+1	Class A, B, AB Amplifiers
	Bac+2	Active filters
	Bac+3	Static and dynamic load lines
	Bac+4	Input and output impedance Op Amps
<b>FPGA lab.</b>	bac+4	VHDL programming picoBlaze processor IP core
<b>Elementary signal processing</b>	Bac+2	Fourier series Discrete Fourier transform Spectral analysis
<b>Applied programming</b>	Bac+5	Introduction to it++ library C++ STBC simulation C++ cooperative simulation Introduction to information theory Channel simulation Bloc codes simulation
<b>Control systems lab.</b>	Bac+3	Feedback System linearization Nyquist and Nichols plots
<b>Signal quantification</b>	Bac+1	PCM and wave encoding Mp3 encoding, Jpeg encoding Quantification noise
<b>Microwave labs.</b>	Bac+3	Radiation diagrams Propagation lines measurements Scalar and vector network analyzers EM and TM modes EM wave Polarization
<b>Audiovisual systems</b>	Bac+1	Sound propagation
	Bac+2	AM modulation, FM modulation Image transmission
<b>RF systems lab.</b>	Bac+3	Passive filters RF transmission chain LNA, Power amplifiers Noise figure measurement S parameter measurements
<b>Web programming</b>	Bac+1 Bac+2	PHP, SQL, Java, Javascript, LabVIEW
<b>Power electronics</b>	Bac+3	Half and full wave Rectifiers 3 phased circuits and systems
<b>Physics</b>	Bac+1	Basic electricity Mechanical movements

## Professional Experience

### Computer

- Creating an internal paper database for the research group ESTE (University of Limoges), as a locally accessible website to manage the papers with the ability to search an article by the authors, keywords, title ...
- Creating a database for the University of Semnan, in the form of software, allowing users to enter data and get reports, both synthetic and detailed in the form of tables or graphs
- Design of several websites

### Electronics and instrumentation

- A synthetic research work on various types of LVDT-based, pressure, or LASER motion sensors
- Upgrade of 12 stations measuring connection rods: Upgrading the PC of each station and rewriting the software, changing some faulty sensors, design of a new protocol for communication between the gauging stations and PCs.
- Design and implementation of a measurement unit for the final connection rods measurements: design of conditioning circuits, developing software tools for data acquisition and processing, implementation of SPC (Statistical Process Control) software.
- Upgrading four stations producing cylinder head of Peugeot: replacement of PLC (Programmable Logic Controller) and rewriting the program in LADER, and interfacing the new system to old parts of the machine.
- Design and development of driver circuits for DC motors of Indramat brand.
- Design of a microcontroller-based circuit to check the level of the oil in a refinery with the possibility of exciting the appropriate signals.
- Automation of a thermodynamics laboratory at the University of Sharif that can realize up to 50,000 temperature and pressure measurements per second. The results are stored and processed by a PC.

## Publications

- Hamid Meghdadi, Vahid Meghdadi, Jean-Pierre Cances, "**Semi-analytic Approach To Evaluate Performance of a Precoded Multiuser Cooperative Scheme**", PIMRC 2010, Istanbul, Turkey
- Hamid Meghdadi, Vahid Meghdadi, Jean-Pierre Cances, "**Cooperative multiple access transmission using precoding vectors**", 17th European Signal Processing Conference 2009 (EUSIPCO2009), 24-28 August 2009, Glasgow, Scotland
- Mohammad Reza Zahabi, Vahid Meghdadi, Hamid Meghdadi, Jean-Pierre Cances, "**Versatile graphs for tail-biting convolutional codes**". In Proceedings of ISCAS'2008. pp.216~219

## Other capabilities

- Hamid Meghdadi, Vahid Meghdadi, Jean-Pierre Cances, “ **Performance Analysis of a Cooperative Multiple Access Relaying Scheme**”, 6th International Wireless Communications & Mobile Computing Conference (IWCMC 2010).
- M. Zahabi, V. Meghdadi, H. Meghdadi, Jean-Pierre Cances, “ **Analog decoding of tail-biting convolutional codes on graphs**”, IEEE International Symposium on Wireless Communication Systems. 2008. ISWCS '08, pp. 533 \_537, oct. 2008.
- H. Meghdadi, V. meghdadi, and Jean-Pierre Cances, “ **Algorithmes de formation de faisceaux coopératifs pour systèmes multi-relais multi-utilisateurs basés sur des statistiques du second ordre**”, in 13ème Colloque GRETSI, GRETSI 2011, 2011.
- Hamid Meghdadi, J-P Cances, and V. Meghdadi, “ **Simple precoding algorithms using Gramschmidt orthonormalization process for multi-user relay communications with optimized power allocation**”. Annals of Telecommunication, 2012.
- Hamid Meghdadi, Jean-Pierre Cances, and Vahid Meghdadi, “ **Semi-analytic performance of a multi-access MIMO scheme using precoding vectors. Accepted for publication in International Journal of Communications**”, Network, and System Sciences, 2011.
- Hamid Meghdadi, Jean-Pierre Cances, and Vahid Meghdadi, “ **Cooperative beamforming for multi-user multi-relay networks based on second-order statistics of channel state information**”. Accepted for publication in IEEE Transaction on Wireless Communications, 2012.

### Languages

**Persian:** Native

**French:** Completely fluent (lived six years in France, studied and lectured in French)

**English:** Advanced (TOEFL iBT: 98/120, TOEIC: 910/990)

**Arabic:** Basic

### Computer and programming

**Web:** HTML, PHP, Javascript

**Programming:** C/C++, LabVIEW, Matlab, Java

**Simulation:** ADS/Momentum, Cadence, HFSS

### Digital systems

**FPGA:** Xilinx, Altera, MicroBlaze, Chipscope, EDK

**Microprocessor:** 80x86, 8085, pic, MPS, Motorola 68000, Z-80, ...

### Research interests

**Wireless communications:** Cooperative networks, power assignment, precoding vectors, beamforming, distributed relaying, relay selection, mathematical relay optimization ...

**Channel coding:** LDPC codes, turbo codes, analog decoding, belief propagation ...