Gholam-Reza Mohammad-Khani

Professional address:
Electronics & Communications Group
Electrical & Computer Departement
IROST (Iranian Research Organization for Science & Technology)
No. 71, Forsat St., Enghelab Av., Tehran, Iran

Tel: 0098-21-66028721, 0098-21-66028135-40
Fax: 0098-21-66028721
E-mail: khani@lss.supelec.fr, mohammadkhani@irost.ir

Date and Birthplace: December 18, 1969, Tehran, IRAN
Nationality: Iranian
Marital Status: Married

Education:

1999-2002: Ph.D. in Electrical Engineering, Communications
ENSIL (Ecole Nationale Supérieur d'Ingénieurs de Limoges)
University of Limoges, France
Advisor: Pr. Jean-Michel Dumas & Pr. Jean-Pierre Cances
Title: Multi-User Detection for Asynchronous DS-CDMA Systems on Raleigh Fading Multi-Path Channels : Turbo Interference Cancellation (Turbo-Detection for DS-CDMA Coded Systems)

1993-1997: M.Sc. in Electrical Engineering, Communication
Sharif University of Technology, Tehran, Iran
Advisor: Pr. Masoomeh Nasiri Kenari
Title: Multi-User Detection for Asynchronous DS-CDMA Systems on Gaussian Channels
GPA: 3.30/4

1988-1993: B.Sc. in Electrical Engineering, Electronic
Sharif University of Technology, Tehran, Iran
Advisor: Pr. Mahmood Tebyani
Title: Study of Dispersion-Flatted Single-Mode (DFSM) optic fibers
GPA: 3/4

1988 High School Diploma in Mathematic-Physic, Mofid High School, Tehran, Iran
GPA: 3.6/4

Honors and Awards

1997 Accepted at Ph.D. Entrance Exam. to study abroad
1993 Ranked 41st in National M.Sc. University Entrance Exam., Iran
1988 Ranked 10th in National Undergraduate University Entrance Exam., Iran
1988 Ranked 8th in National Student Mathematic Olympiad, Iran

Interests

Wireless Communications (Cellular Communication, W-LAN, …)
MIMO Systems and related codes, Space-Time Codes (STBC, STTC, BLAST, …)
CDMA systems, Multiple Access Channel, Multi-User Detection
Dirty Paper Coding for Broadcast Channels
Ultra Wideband Systems (UWB), Multi-Carrier Modulation (OFDM)
Information Theory, Channel & Source Coding
Turbo-Decoding, Turbo-Detection, Turbo-Equalization
Channel Estimation & Synchronization
Satellite Communication
Secure Communication, Spread-Spectrum Systems, Cryptography

Special Skills

Language:	French, English
Programming Language:	C/C++, Fortran, Basic
Software Package:	Matlab, COSSAP (CoCentric of Synopsys), Orcad, Latex Office (Word, Excel, PowerPoint)

Research and Work Experiences

2006-presnet Head of Electronics & Communications Group, IROST
Scientific Member of IROST
Project for Spatial Agency of Iran
Satellite Security Systems in Data Communication

2006-present Researcher Wireless Laboratory, Sharif University of Technology
Some Projects on UWB and W-CDMA (3GPP)

2004-2006 Post-Doctoral, LSS-Supélec (Ecole Supérieure d'Electricité), Paris
Project for France-Telecom R&D (Research & Development):
Dirty-Paper Coding for MIMO Broadcast Channels
Interference Cancellation at Base-Station in Downlink Cellular Systems, Satellite Systems, ADSL Networks, (Data Hiding) Digital Watermarking

2003-2004 Post-Doctoral, LSS-Supélec, Paris
National Project on Robust Transmission of Video
Soft Decoding of Variable Length Codes (VLC), (Standard H263)
National Project entitled ODEBI:
Collaborator : Mitsubishi, Motorola, Tamson, NewLogic and LIP6
High-Rate Wireless-Local Network (new generation W-LAN)
Optimization of physical layer in interaction with network (MAC) layer
Increasing transmission rate in physic layer using MIMO Systems

2002-2003	Post-Doctoral, ENSIL, University of Limoges, France MIMO (Multi-Antenna) Systems and related coding Space-Time Coding : STBC, STTC, BLAST	
1999-2002	Ph.D. Researches ENSIL, University of Limoges, France Project for France-Telecom R&D (Research & Development) Interference Cancellation in CDMA-UMTS Systems (Uplink Cellular Systems) on Multi-Path Rayleigh Fading Channel	
1996-1998	Project author for expansion of radio-diffusion	IRIB, Tehran, IRAN
1994-1998	Technique Advisor of Projects	
1994-1998	Technical Expert	
1996	Course of ITU/ABU on Spectrum Conducting and Planning of Frequency	

Teaching Experiences

Teaching assistant:

2004-2006	Analogical Communication Systems	University of Paris XI
	Digital Signal Processing	University of Paris VI
2004-2005	RF Transmission	University of Paris VI
	Digital Signal Processing	University of Paris XI
2003-2004	Introduction to Digital Communication	University of Paris VI
	Digital Communication Systems	University of Paris VI
	Digital Signal Processing	University of Paris VI
	Microprocessor Architecture	EFREI-Villejuif
2002-2003	Informatics, C++	ENSIL, University of Limoges
	Signal Processing	ENSIL, University of Limoges
	COSSAP Software	ENSIL, University of Limoges
1994-1995	Stochastic Process	Sharif University of Technology
	Fundamentals of Electrical Engineering	Sharif University of Technology
1993-1994	Probability and Statistics for Engineering	Sharif University of Technology

COSSAP: Professional software package to realize simulations of digital telecommunications systems

Publication and Presentation

Journal Paper:

- **G. R. Mohammad-Khani**, M. Kieffer and P. Duhamel, "Simplification of VLC Tables with Application to ML and MAP Decoding Algorithms," IEEE Transactions on Communications, vol. 54, no. 10, pages 1835-1844, October 2006
- **G. R. Mohammad-Khani**, V. Meghdadi and J. P. Cances, " New Accurate Upperbounds for Maximum Likelihood Decoder of STBC," IEE Proceeding Circuit, Devices and System, vol. 153, no. 4, August 2006, pages 307-314
- J.P. Cances, **G.R. Mohammad-Khani** and V. Meghdadi, "Turbo Interference Mitigation in Layered Space-Time MIMO Uplink with TTCM (Turbo Trellis Coded Modulation)," Wireless Personal Communication, vol. 37, no. 1-2, pages 105-121, April 2006.
- **G. R. Mohammad-Khani**, V. Meghdadi and J. P. Cances, "Maximum Likelihood Decoding Rules for STBC: Generalized Framework for Detection and Derivation of new Accurate Upperbounds," Annals of Telecommunications, tome 59, n° 9-10, September-October 2004
- J.P. Cances, **G.R. Mohammad-Khani** and V. Meghdadi, "Turbo Soft Interference Cancellation for Coded CDMA," Annals of Telecommunications, tome 56, n° 7-8, pages 422-433, July-August 2001
- **G.R. Mohammad-Khani**, C. M. Lee, M. Kieffer and P. Duhamel, "Treillis à complexité réduite pour le décodage de codes à longueur variable," Selected for Special Issue of French Scientific Journal 'Traitement du Signal' on GRETSI 2005

Conferences Presentations:

International Conferences:

- **G. R. Mohammad-Khani**, S. Lasaulce, J. Dument "DPC vs TDMA with Practical Coding Technique," IEEE Conference ISSPIT 2006, August 27-30, Vancouver, Canada
- **G. R. Mohammad-Khani**, S. Lasaulce, J. Dument "About the Performance of Practical Dirty Paper Coding Schemes in Gaussian MIMO Broadcast Channels," IEEE Workshop SPAWC 2006, July 2-5, Cannes, France.
- **G. R. Mohammad-Khani**, S. Lasaulce, J. Dument "DPC vs TDMA with practical coding technique," IEEE Conference ISSPIT 2006, August 27-30, Vancouver, Canada
- G. Ferre , M. J. Syed, J.P. Cances, V. Meghdadi and **G.R. Mohammad-Khani,** "Turbo EM Based Equalization for Multi-User Multi-Carrier Space Time System, " Malaysia International Conference on Communications and International Conference on Networks, 7th MICC & 13th ICON IEEE Conferences, pp. 440-445, Malaysia, November 16-18, 2005.
- M. J. Syed, G. Ferre, J.P. Cances, V. Meghdadi and **G.R. Mohammad-Khani** "A New Transmit Preprocessing Technique for Multiuser MIMO Downlink Communications," 11th European Wireless Conference 2005, Nicosia, Cyprus, April 10-13, 2005
- M. J. Syed, V. Meghdadi, G. Ferre, J.P. Cances, J.M. Dumas and **G.R. Mohammad-Khani** "Multi-User Detection in OFDM STBC for High Rate Uplink Application," WCNC 2005 (Wireless Communications and Networking Conference) IEEE Conference, New Orlean, March 13-17 2005

- M. J. Syed, G. Ferre, J.P. Cances, V. Meghdadi and **G.R. Mohammad-Khani** "Multi-User Space Time Diversity System Design for Uplink Multi-Carrier CDMA," International Conference on Signal Processing and Communications SPCOM 2004 IEEE Conference, Bangalore (India) December 11-14 2004
- M. J. Syed, G. Ferre, J.P. Cances V. Meghdadi and **G.R. Mohammad-Khani** "Performance of LDPC Based Multi-User Space-Time Diversity System Design for Uplink-Multicarrier CDMA" International Symposium on Intelligent Signal Processing and Communication Systems ISPACS 2004 IEEE Conference, Seoul (Korea) November 18-19 2004
- J.P. Cances, **G.R. Mohammad-Khani** and V. Meghdadi "A New Based Equalizer Multistage Multiuser Detector for Asynchronous DS-CDMA Systems," 13th IST Mobile & Wireless Communications, Lyon, France, June 27-30 2004
- **G.R. Mohammad-Khani**, V. Meghdadi, J.P. Cances and L. Azizi "Maximum Likelihood Decoding Rules for STBC: Generalized Framework for Detection and Derivation of new Accurate Upperbounds," ICC2004 IEEE Conference, Paris, June 20-24 2004.
- **G.R. Mohammad-Khani**, J.P. Cances, M.J. Syed and V. Meghdadi "PIC Multiuser DS-CDMA Detection together with EM Channel Estimation," APCC2003 (The 9th Asia-Pasific Conference on Communication) IEEE Conference, Malasyia, September 21-24 2003.
- M.J. Syed, **G.R. Mohammad-Khani**, J.P. Cances and V. Meghdadi "LDPC-Based Space-Time Coded OFDM Systems Performances over Correlated Fading Channels," APCC2003 (The 9th Asia-Pasific Conference on Communication) IEEE Conference, Malaysia, September 21-24 2003.
- **G.R. Mohammad-Khani**, J.P. Cances, M.J. Syed and V. Meghdadi "Successive Interference Cancellation for DS-CDMA Systems Together with EM Channel Estimation," ICASSP2003 "Student Forum", IEEE Conference, Hong Kong, April 2003.
- J.P. Cances, **G.R. Mohammad-Khani** and V. Meghdadi "Adaptive Multi-shot Multiuser Detection for Asynchronous MC-CDMA Using Bootstrap Algorithm," IEEE Irish Signals and Systems Conference (ISSC2002), June 2002.
- **G.R. Mohammad-Khani**, J.P. Cances and V. Meghdadi "Turbo TCM and Transmit Antenna Diversity in Multipath Fading Channels with CSI PSAM," ICASSP2002 IEEE Conference, Orlando, May 2002.
- **G.R. Mohammad-Khani**, J.P. Cances and V. Meghdadi "Application of Turbo Soft Interference Cancellation and Synchronous Equivalent Model of Multi-Shot for Coded Asynchronous DS/CDMA," Wireless Design Conference (WDC2002), London May 2002.
- J.P. Cances, **G.R. Mohammad-Khani** and V. Meghdadi "Turbo-TCM for STBC in Multipath Fading Channels," Wireless Design Conference (WDC2002), London May 2002.
- J.P. Cances, V. Meghdadi and **G.R. Mohammad-Khani** "Turbo-TCM and Transmit Antenna Diversity in Multipath Fading Channels," ECWT European Conference on Wireless Technologies 2001 (ECWT2001), September 2001.
- J.P. Cances, V. Meghdadi and **G.R. Mohammad-Khani** "Channel Estimation for Downlink Transmitting in UMTS DS-CDMA Based System," IEEE Irish Signals and Systems Conference 2001 (ISSC2001), June 2001.
- **G.R. Mohammad-Khani**, J.P. Cances and V. Meghdadi "Multiple Access Interference Cancellation in Multicarrier CDMA Systems using a Subspace Projection Technique," IEEE Irish Signals and Systems Conference 2001 (ISSC2001), June 2001.
- **G.R. Mohammad-Khani**, J.P. Cances and V. Meghdadi "Turbo Soft Interference Cancellation for Coded Asynchronous CDMA," ICASSP2001 "Student Forum", IEEE Conference, Salt Lake City, May 5-11 2001.

- **G.R Mohammad-Khani**, J.P Cances and V.Meghdadi, "A Comparison Study between Sliding Window Decorrelating Detectors for Asynchronous CDMA-UMTS," IEEE International Conference on Personal Wireless Communications (ICPWC), pages 250-256, Hyderabad (India), December 2000.

National (French-Speaking) Conferences

- **G.R. Mohammad-Khani**, C. M. Lee, M. Kieffer and P. Duhamel, "Treillis à Complexité Réduite pour le Décodage de Codes à Longueur Variable," GRETSI, 6-9 September 2005, Louvain-la-Neuve, Belgique.
- **G.R. Mohammad-Khani**, J.P. Cances, V. Meghdadi, and A. Vergonjanne, "Turbo-Suppression d'Interférences Dans un Système à Etalement de Spectre Utilisant le Codage Spatio-Temporel," GRETSI, 8-11 September 2003, Paris.
- J.P. Cances, V. Meghdadi, and **G.R. Mohammad-Khani**, "Récepteurs de Rake Adaptatifs pour Transmission DS-CDMA sur des Canaux Sélectifs en Fréquencen," GRETSI, 8-11 September 2001, Toulouse.
- J.P. Cances, **G.R. Mohammad-Khani** and V. Meghdadi, "Présentation des Récepteurs à Annulation d'Interférences de Type Turbo," GDR ISIS 9, Paris, June 2001.

References:

Dr. Pierre Duhamel	Professor	LSS-Supélec, Paris
Dr Michel Kieffer	Professor	
Dr Samson Lasaulce	Assistant Professor	
Dr Jean-Luc Zarader	Professor	LISIF-University Paris VI
Dr. Maurice Milgram	Professor	
Dr. Bruce Denbi	Professor	
Dr. Patrice Decarné	Assistant Professor	IFIPS-University Paris XI
Dr. Jean-Michel Dumas	Professor	ENSIL-University of Limoges
Dr. Jean-Pierre Cances	Professor	
Dr. Vahid Meghdadi	Assistant Professor	
Dr. Masoomeh Nasiri-Kenari	Professor	Sharif University of Technology
Dr. Mohammad-Hassan Bastani	Associated Professor	
Dr. Mahmood Tebyani	Professor	