

## Tiago Travassos Vieira Vinhoza

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Instituto de Telecomunicações  
Faculdade de Ciências da Universidade do Porto (FCUP)  
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### Education

Ph.D. Electrical Engineering, Pontifícia Universidade Católica do Rio de Janeiro (PUC-Rio), 2007  
Full Scholarship: Brazilian National Research Council – CNPq.  
GPA: 9.7/10

M.Sc. Electrical Engineering, PUC-Rio, 2003  
Full Scholarship: Coordination for the Improvement of Higher Level Personnel – CAPES.  
GPA: 9.4/10

Diploma in Electrical Engineering, PUC-Rio, 1999  
GPA: 8.2/10

### Research Experience

Research Fellow	Jun/2012–
Instituto de Telecomunicações	IT-Porto
Topics: Biomedical Signal Processing	

Research Fellow	Dec/2008–Jun/2012
Instituto de Telecomunicações	IT-Porto
Topics: Information Theory, Wireless Communications, Vehicular Networks, Network Coding	

Post-Doc	Jan/2008–Jul/2008
Advisor: Prof. Raimundo Sampaio Neto	PUC-Rio
Topics: Single Carrier and Multicarrier Communication Systems	
Channel Estimation and receiver design for OFDM and Multicarrier CDMA systems.	

Ph.D. Student	Sep/2003–Dec/2007
Advisor: Prof. Raimundo Sampaio Neto	PUC-Rio
Topics: Structures and adaptive algorithms for blind detection of DS-CDMA signals	
Multiuser Detection, Interference Suppression, Blind Adaptive Algorithms	

M.Sc. Student	Mar/2001–Sep/2003
Advisor: Prof. J. Roberto B. de Marca	PUC-Rio
Topics: Radio Resources Management, Hierarchical Cell Structures	

### Research Interests

Wireless Communications, Signal Processing  
Communications Theory, Information Theory,

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### Teaching Experience

- Information Theory: Principles and Applications, MAP-Tele Doctoral Program, 2010
- Teaching Assistant, Statistical Theory of Communications, PUC-Rio, 2004.1, 2006.1, 2007.1, 2008.1
- Teaching Assistant, Probabilistic Models in Engineering, PUC-Rio, 2002.1, 2003.2, 2004.2
- Teaching Assistant, Random Processes, PUC-Rio, 2003.1, 2005.1, 2007.2
- Teaching Assistant, Principles of Communications, PUC-Rio, 2005.2, 2007.2
- Teaching Assistant, Digital Transmission, PUC-Rio, 2006.2
- Teaching Assistant, Error Correcting Codes, presented by Prof. Weiler Finamore at Star One, 2006 (prepared MATLAB demos)

### Publications

#### Journal Papers:

1. P. F. Oliveira, L. Lima, T. T. V. Vinhoza, M. Medard, J. Barros "Coding for Trusted Storage in Untrusted Networks", IEEE Transactions on Information Forensics and Security, 2012.
2. M. Boban, T. T. V. Vinhoza, O. K. Tonguz, J. Barros, "Seeing is Believing? Enhancing Message Dissemination in Vehicular Networks Through Visual Cues", IEEE Communication Letters, Vol.16, No.2, pp. 238-241, February 2012.
3. G.F. Marias, J. Barros, M. Fiedler, A. Fischer, H. Hauff, R. Herkenhoener, A. Grillo, A. Lentini, L. Lima, C. Lorentzen, W. Mazurczyk, H. de Meer, P. F. Oliveira, G.C. Polyzos, E. Pujol, K. Szczypiorski, J.P. Vilela, T. T. V. Vinhoza, "Security and Privacy Issues for the Network of the Future", submitted to Wiley Security and Communications Networks, 2011.
4. M. Nistor, D. E. Lucani, T. T. V. Vinhoza, R. A. Costa and J. Barros, "On the Delay Distribution of Random Linear Network Coding", To appear in IEEE Journal on Selected Areas in Communications (Special issue on Trading Rate for Delay at Transport and Application Layers), Vol.29, No.5, pp. 1084-1093, May 2011.
5. M. Boban, T. T. V. Vinhoza, M. Ferreira, J. Barros, O. K. Tonguz, "Impact of Vehicles as Obstacles in Vehicular Adhoc Networks", IEEE Journal on Selected Areas in Communications (Special issue on Vehicular Communications and Networks), Vol.29, No.1, pp. 15-28, January 2011.
6. T. T. V. Vinhoza, R. C. de Lamare, R. Sampaio-Neto "Blind Adaptive and Iterative Interference Cancellation Receiver Structures based on the Constant Modulus Criterion in Multipath Channels", IET Communications, Vol. 2, No. 9, pp.1131-1140, October 2008.

#### Book Chapter:

1. M. Boban and T. T. V. Vinhoza, 'Modeling and Simulation of Vehicular Networks: Towards Realistic and Efficient Models,' in ' Mobile Ad-Hoc Networks: Applications', InTech Publishers, January 2011

**International Conferences:**

1. A. Castro, T. T. V. Vinhoza, S. S. Mattos, M. T. Coimbra, "Heart Sound Segmentation of Pediatric Auscultations Using Wavelet Analysis", submitted to the, 35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 2013), Osaka, Japan, 2013.
2. P. Ferreira, T. T. V. Vinhoza, A. Castro, F. Mourato, T. Tavares, S. S. Mattos, I. Dutra, M. T. Coimbra, "Knowledge on Heart Condition of Children based on Demographic and Physiological Features", submitted to the 26th International Symposium on Computer-Based Medical Systems (CBMS 2013), Porto, Portugal, 2013.
3. M. C. Castro, B. F. Uchôa-Filho, T. T. V. Vinhoza, M. Noronha-Neto, J. Barros, "Improved Joint Turbo Decoding and Physical-Layer Network Coding", accepted in Information Theory Workshop (ITW 2012), Lausanne, Switzerland, 2012.
4. C. A. Medina, T. T. V. Vinhoza, R. Sampaio-Neto, "Adaptive Minimum Bit Error Rate Receiver for CDMA-based Block Transmission Systems", invited paper, International Symposium on Wireless Communications Systems (ISWCS 2010), York, United Kingdom, 2010.
5. J. Rodrigues, F. Vieira, T. T. V. Vinhoza, J. Barros, J. P. Cunha, "A Non-Intrusive Multi-Sensor System for Characterizing Driver Behavior", IEEE Intelligent Transportation Systems Conference (ITSC 2010), Funchal, Portugal, 2010.
6. P. F. Oliveira, L. Lima, T. T. V. Vinhoza, J. Barros, M. Medard, "Trusted Storage over Untrusted Networks", accepted for publication, IEEE GLOBECOM 2010, Miami, FL, USA, 2010.
7. M. Nistor, R. A. Costa, T. T. V. Vinhoza, J. Barros "Non-Asymptotic Delay Analysis of Network Coding", IEEE International Symposium on Network Coding (NetCod) , Toronto, ON, Canada, 2010.
8. M. Nistor, J. Barros, F. Vieira, T. T. V. Vinhoza, J. Widmer, "Network Coding Delay: A Brute-Force Analysis", Information Theory and Applications Workshop (ITA 2010), *invited paper*, San Diego, CA, USA, 2010.
9. C. A. Medina, R. Sampaio-Neto, T. T. V. Vinhoza, "A Blind Channel Estimation Algorithm for Space-Time Coded MC-CDMA Receivers", IEEE International Conference on Communications, Dresden, Germany 2009.
10. C. A. Medina, T. T. V. Vinhoza, R. Sampaio-Neto, "Reduced Complexity Blind Channel Estimation for MC CDMA Systems", SPAWC 2008, Recife, PE, Brazil, 2008.
11. F. D. Backx, T. T. V. Vinhoza, R. Sampaio-Neto, "Blind Channel Estimation for Zero-Padded OFDM Systems Based on Correlation Matching", 66th IEEE Vehicular Technology Conference (VTC-Fall 2007), Baltimore, MD, USA 2007.
12. F. D. Backx, T. T. V. Vinhoza, R. Sampaio-Neto, "Power Techniques for Blind Channel Estimation in Zero-Padded OFDM Systems", 18th IEEE International Symposium on Personal, Indoor and Mobile Radio Communications, Athens, Greece 2007.
13. C. A. Medina, T. T. V. Vinhoza, R. Sampaio-Neto "Performance Comparison of Minimum Variance Single Carrier and Multicarrier CDMA Receivers", SPAWC 2007, Helsinki, Finland, 2007.
14. T. T. V. Vinhoza, R. C. de Lamare, R. Sampaio-Neto, "New Constrained Blind Adaptive Receivers for DS-CDMA Systems Based on Group Constraints", International Telecommunications Symposium, (ITS), Fortaleza, CE,, Brazil, 2006
15. M. F. Marçal, T. T. V. Vinhoza, F. D. Backx, R. Sampaio-Neto, "A Grouping Strategy for Parallel Group Detection in Synchronous Gaussian CDMA Channels", International Telecommunications (ITS), Fortaleza, CE, Brazil, 2006.

16. R. C. de Lamare, T. T. V. Vinhoza, R. Sampaio-Neto, "Blind Adaptive and Iterative Interference Cancellation Receiver Structures based on the Constant Modulus Criterion in Multipath Channels", International Telecommunications (ITS), Fortaleza, CE, Brazil, 2006.
17. T. T. V. Vinhoza, R. C. de Lamare, R. Sampaio-Neto, "Blind Adaptive Linear Parallel Interference Cancellation for DS-CDMA in Frequency Selective Fading Channels", International Symposium on Spread Spectrum Techniques and Applications (ISSSTA), Manaus, AM, Brazil, 2006.
18. T. T. V. Vinhoza, R. C. de Lamare, R. Sampaio-Neto, "Low Complexity Blind Constrained Data-Reusing Algorithms based on Minimum Variance and Constant Modulus Criteria", IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2006), Toulouse, France, 2006.
19. T. T. V. Vinhoza, R. C. de Lamare, R. Sampaio-Neto, "Enhanced Blind Minimum Variance CDMA Receivers with Joint Channel Estimation for Frequency Selective Channels", IEEE Vehicular Technology Conference (VTC-Fall 2004), Los Angeles, CA USA, 2004.
20. J. R. B. de Marca and T. T. V. Vinhoza, "Comparative Performance of Hierarchical Cell Architectures", IEEE Radio and Wireless Conference (RAWCON 2004), Atlanta, GA USA, 2004.

**Domestic Conferences (in Portuguese unless stated):**

1. M. C. Castro, B. F. Uchôa-Filho, T. T. V. Vinhoza, M. Noronha-Neto, J. Barros, "Decodificação Turbo Integrada a Codificação de Rede na Camada Física (in Portuguese), accepted in XXX Simpósio Brasileiro de Telecomunicações (SBrT 2012)
2. C. A. Medina, R. Sampaio-Neto, T. T. V. Vinhoza, "Space-Time Coding for Single Carrier Block CDMA Systems", XXVI Simpósio Brasileiro de Telecomunicações (SBrT 2008) in English, Rio de Janeiro, RJ, Brazil, 2008.
3. C. A. Medina, T. T. V. Vinhoza, R. Sampaio-Neto, "Performance Comparison of Space-Time Block Coding for Single and Multicarrier CDMA Systems", XXV Simpósio Brasileiro de Telecomunicações (SBrT 2007), in English, Recife, PE, Brazil, 2007.
4. D. F. Cardoso, T. T. V. Vinhoza, R. Sampaio-Neto, "Análise de Estimadores de Canal Assistidos para Sistemas CDMA com Múltiplas Portadoras", XXV Simpósio Brasileiro de Telecomunicações (SBrT 2007), Recife, PE, Brazil, 2007.
5. B. R. da Costa, T. T. V. Vinhoza, R. C. de Lamare, R. Sampaio-Neto, "Equalização Adaptativa no Domínio da Frequência para Sistemas com Transmissão em Blocos", XXV Simpósio Brasileiro de Telecomunicações (SBrT 2007), Recife, PE, Brazil, 2007.
6. R. C. de Lamare, T. T. V. Vinhoza, R. Sampaio-Neto "Receptores Espaço-Temporais Lineares Adaptativos de Posto Reduzido para DS-CDMA utilizando filtros FIR Interpolados", XXII Simpósio Brasileiro de Telecomunicações (SBrT 2005), Campinas, SP, Brazil, 2005.
7. T. T. V. Vinhoza, R. C. de Lamare, R. Sampaio-Neto "Receptores Cegos Melhorados de Mínima Variância com Estimação Conjunta de Canal para Canais Seletivos em Frequência", XXI Simpósio Brasileiro de Telecomunicações (SBrT 2004), Belém, PA, Brazil, 2004.
8. T. T. V. Vinhoza and J. R. B. de Marca, "Análise Comparativa do Desempenho de Sistemas Celulares Hierarquizados", XXI Simpósio Brasileiro de Telecomunicações (SBrT 2004), Belém, PA, Brazil, 2004.

### Submitted Manuscripts:

1. F. L. Hedayioglu, A. Castro, T. T. V. Vinhoza, S. S. Mattos, M. T. Coimbra, "Generating Synthetic Auscultations using Physiologically Inspired Parameters", submitted to the Computing in Cardiology Conference, Zaragoza, Spain, 2013.

### Manuscripts under preparation:

1. R. A. Costa, D. E. Lucani, T. T. V. Vinhoza, J. Barros, "On the Use of Feedback in Lossy Half-Duplex Channels with Time Constraints"
2. N. C. Silva, T. T. V. Vinhoza, A. Castro, S. S. Mattos, M. T. Coimbra "A Noise Detection Methodology based on Periodicity Measures: Processing Noise Contaminated Phonocardiograms "
3. F. L. Hedayioglu, A. Castro, T. T. V. Vinhoza, S. S. Mattos, M. T. Coimbra, "Exploring Three Approaches to Segment the Second Heart Sound",

### Invited Talks

1. "Impact of Vehicles as Obstacles in Vehicular Ad Hoc Networks", Ciencia 2010 Meeting , Lisboa, Portugal, 2010
2. "Vehicular Communications: How important is to see who are you talking to?", MAP-Tele Student Workshop (MAPSHOP 2010), Porto, Portugal

### Paper Reviews

### Journals

IEEE Trans. on Vehicular Technology, IEEE Trans. on Wireless Communications

IET Communications, IET Signal Processing, Electronics Letters

IEEE JSAC Special Issue on Vehicular Communications and Special Issue on Trading Rate for Delay in the Transport and Application Layers.

### Conferences

TPC Member of IEEE WCNC 2013

Vehicular Technology Conference, WiOpt

ISIT, NetCod, WCNC, SPAWC, ISWCS, ISSSTA, PIMRC

Brazilian Telecommunications Symposium

## Tiago Travassos Vieira Vinhoza

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### Skills

Languages: Portuguese (native), English (Cambridge CAE - grade A), French (basic).

Software: MATLAB/Simulink (Communications and Signal Processing toolboxes), Python (basic knowledge), Sage (basic knowledge), Latex, Microsoft Office.

Operating Systems: Windows, Linux

Project Work:

- Management of WITS (Wireless Information Theoretic Security) project funded by the Portuguese Foundation for Science and Technology - PI: Prof. João Barros. Organization of project meetings and preparation of reports.
- Participation in proposal writing at IT-Porto.

Organizational: Responsible for organization of the IT-Porto group meetings

### Honors and Awards

Academic Excellence Certificate, 1999.

CAPES scholarship for Master studies, 2001.

CNPq scholarship for Doctoral studies, 2003.

Post-Doctoral Scholarship from the Portuguese Foundation for Science and Technology, 2009.

“Ciência 2008” contract from the Portuguese Foundation for Science and Technology, 2009.

### References

Prof. João Barros, FEUP / Instituto de Telecomunicações  
jbarros@fe.up.pt, Phone: +351 225081825

Prof. Raimundo Sampaio Neto, CETUC, PUC-Rio  
raimundo@cetuc.puc-rio.br, Phone: +55 21 3527-1699

Prof. Rodrigo Caiado de Lamare, Communications Group, University of York  
rcdl500@ohm.york.ac.uk, Phone: +44 (0)1904 432346

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