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## Research Interests

Computer networking with emphasis on mobile communications, security, big data, smart grid, and quality-of-service guarantees.

## Education

Dr. Ing. in Computer Science - 1985  
École Nationale Supérieure des Télécommunications – ENST and Institut National de Recherche en Informatique et Automatique – INRIA

C.E.S. - Certificat d'Etudes Supérieures - 1982  
ENST - Ecole Nationale Supérieure des Télécommunications - 1982.

M. Sc. in Electrical Engineering - 1981  
COPPE/Universidade Federal do Rio de Janeiro

B.E. Electronic Engineer – 1976  
Universidade Federal do Rio de Janeiro

## Work experience

Full Professor at Universidade Federal do Rio de Janeiro – 1978

Assistant Professor at Escola Naval - January 1978 to July 1981

Assistant Professor at Universidade Santa Úrsula - July 1978 to July 1981

Internship at EMBRATEL – February 1976 to 1977

Post Doctoral Fellow  
International Computer Science Institute (ICSI) in Berkeley May to August 1995.

Post Doctoral Fellow  
MASI laboratory at the University of Paris 6, from January 1992 to June 1993

Invited professor at Paris 6 University June/July 1999 and June/July 2001

## Awards

- Researcher I of CNPq – granted to the most outstanding researchers of Brazil. CNPq is the technology research branch of the Brazilian government, 2009.
- Cientista do Nosso Estado (Scientist of Our State Award) – granted to the 300 most outstanding researchers of the state of Rio de Janeiro, 2009.
- Best Paper (9 in 300) of Computer Network Symposium (SBRC’2008) “Mecanismo Anti-Spam Baseado em Autenticação e Reputação”, co-author Danilo Michalczuk Taveira, 2008.
- Best Paper of Computer Network Symposium (SBRC’2007) “Uma Avaliação Multienlace do Mecanismo de Controle de Admissão Baseado no Grau de Ocupação em Redes Ópticas”, co-author Igor Monteiro de Moraes, 2007.
- Best Paper (6 in 66) Computer Network Security Symposium (SBSEG’2007), “Uma Proposta de Marcação de Pacotes para Rastreamento Robusto a Ataques”, co-authors Marcelo Duffles D. Moreira, Rafael P Laufer, Pedro B. Velloso, 2007.
- Cientista do Nosso Estado (Scientist of Our State Award) – granted to the 300 most outstanding researchers of the state of Rio de Janeiro, 2006.
- Best Paper (6 in 300) of Computer Network Symposium (SBRC’2005) “Um Mecanismo de Controle de Admissão para Provisão de Serviços Diferenciados em Redes de Rajadas Ópticas”, co-author Igor Monteiro de Moraes., 2005.
- Researcher I of CNPq – granted to the most outstanding researchers of Brazil. CNPq is the technology research branch of the Brazilian government, 2006.
- Researcher I of CNPq – granted to the most outstanding researchers of Brazil (CNPq is the technology research branch of the Brazilian government), 2003.
- Researcher II of CNPq – granted to the most outstanding researchers of Brazil (CNPq is the technology research branch of the Brazilian government), 2001.
- Cientista do Nosso Estado (Scientist of Our State Award) – granted to the 200 most outstanding researchers of the state of Rio de Janeiro, 2004.
- Cientista do Nosso Estado (Scientist of Our State Award) – granted to the 200 most outstanding researchers of the state of Rio de Janeiro, 2002.
- RAT: Rastreamento de ATAques (IP Traceback) – Research Project select by Universal on Line (14 selected among 434 submissions) - 2004
- Received government fellowships for Undergraduate Research Assistant, M. Sc Thesis, Ph. D. Thesis, and two sabbatical periods.
- Best Paper (10 in 270) of Computer Network Symposium (SBRC’2001) “HBH: Um Protocolo de Roteamento para a Implantação Progressiva do Serviço Multicast”, co-author Luís Henrique M. K. Costa, 2001.
- Best Paper (10 in 270) of Computer Network Symposium (SBRC’2001) “Otimização da Qualidade de Vídeo em Redes Multicast não Cooperativas”, co-author M. D. de Amorim, 2001.
- Best Paper (10 in 270) of Computer Network Symposium (SBRC’2000) “Um Serviço Ativo de Distribuição de Vídeo Multiponto”, co-authors P. A. S. Gonçalves and J. F. de Rezende, 2000.

- 11 (1995, 3-1996, 2000, 2-2001, 2003, 3-2005) Undergraduate Assistant Student works selected as outstanding results in the Technological Branch of UFRJ.

## **Professional Activities**

- Advisor of 11 Ph. D Thesis, 45 M. Sc. Thesis, and 39 Final Projects
- Advisor of more than one hundred undergraduate research assistants
- Author of more than 200 papers published in national/international conferences and journals
- Lecturer for several tutorials in Computer Network Area
- Program Committee member for several national and international conferences
- Reviewer for IEEE, IFIP, and other conferences and journals
- Coordinator of Inter-university Cooperation Programs
- Founder of the Grupo de Teleinformática e Automação (Computer Network and Automation Group) in 1996.

## **Research Projects**

Coordinator or participant of more than 20 Research Projects funded by the Government, the State of Rio de Janeiro or the University. Recent projects are:

- HORIZON – bi-national project (Brazil-France) research concerning virtualization and Internet of Future.
- ReBu – research concerning robustness and Internet of Future.
- RedesNG – research concerning new generation of computer networks.
- SAMBA – bi national research cooperation project (Brazil-France) concerning future of internet, testbeds, sensor networks,
- TAQUARA – research concerning high speed communications over optical networks
- CISBTVD – research about the use of wireless ad hoc network as interactive channel for the Brazilian Digital TV
- RAT – research concerning IP traceback to defeating Distributed Denial of Service attacks
- COSMOS – research about security, quality of service and mobility
- RARA – research about autonomic networks

## **Selected Journals**

A list of publications can be obtained at <http://www.gta.ufrj.br/publicacoes/>

- Velloso, P. B., Laufer, R. P., Cunha, D. O., Duarte, O. C. M. B., Pujolle, G. "Trust management in mobile ad hoc networks using a scalable maturity-based model", in IEEE Transactions on Network and Service Management, vol. 7, no. 3, pg. 172-185, sep 2010.
- Moraes, I. M. and Duarte, O. C. M. B. - "Using the Network Load for Admission Control in OBS Networks: a Multilink Approach", Journal of Optical Communications and Networking, ISSN 1943-0620, vol. 2, no. 3, pp. 137-147, March 2010.  
English, Letter size, 10 p., file: [MoDu10a.pdf](#)
- Fernandes, N. C., Moreira, M. D. D., Duarte, O. C. M. B. - "A Self-Organized Mechanism for Thwarting Malicious Access in Ad Hoc Networks", In 2010 Proceedings IEEE INFOCOM (INFOCOM miniconference), pp. 1-5, ISSN 074316X, ISBN 978-1-4244-5836-3, San Diego, USA, March, 2010.  
English, A4 size, 5 p., file: [FeMoDu10.pdf](#)
- Fernandes, N. C., Moreira, M. D., and Duarte, O. C. M. B. - "An Efficient Filter-based Addressing Protocol for Autoconfiguration of Mobile Ad Hoc Networks", in The 28th Conference on Computer Communications - IEEE INFOCOM 2009, pp. 2464-2472, ISBN:9781424435128, Rio de Janeiro, RJ, Brazil, April 2009.  
English, A4 size, 9p., file: [FMD09.pdf](#)
- Rubinstein, M. G., Abdesslem, F. B., Cavalcanti, S. R., Campista, M. E. M. C., Alves, R. S., Costa, L. H. M. K., Amorim, M. D., and Duarte, O. C. M. B. - "Measuring the capacity of in-car to in-car vehicular networks", in IEEE Communications Magazine, vol. 47, no. 11, pp. 128-136, November 2009  
English, A4 size, 15 p., file: [RAC09.pdf](#)
- Moraes, I. M., Laufer, R. P., Cunha, D. O., and Duarte, O. C. M. B. - "An Efficient Admission Control Mechanism for Optical Burst-Switched Networks", Photonic Network Communications, ISSN 1387-974X, vol. 18, no. 1, pp. 65-76, August 2009.  
English, A4 size, 12 p., file: [MoDu08a.pdf](#)
- Cunha, D. O., Duarte, O. C. M. B., and Pujolle, G. - "A Cooperation-Aware Routing Scheme for Fast Varying Fading Wireless Channels", in IEEE Communications Letters, ISSN 1089-7798, vol. 12, no. 10, pp. 794-796, October 2008.  
English, A4 size, 3 p, file: [CDP08b.pdf](#)
- Amodei Jr., A., Costa, L. H. M. K., and Duarte, O. C. M. B. - "Increasing the throughput of HomePNA", International Journal of Communication Systems, ISSN 1074-5351, vol. 21, no.7, pp. 695-711, July 2008.  
English, A4 size, 17 p., file: [ACD08.pdf](#)
- Campista, M. E. M., Passos, D. G., Esposito, P. M., Moraes, I. M., de Albuquerque, C. V. N., Saade, D. C. M., Rubinstein, M. G., Costa, L. H. M. K., and Duarte, O. C. M. B. - "Routing Metrics and Protocols for Wireless Mesh Networks", in IEEE Network, ISSN 0890-8044, vol. 22, no. 1, pp. 6-12, January 2008.  
English, A4 size, 30 p., file: [CPE08.pdf](#)
- Velloso, P. B., Rubinstein, M. G., Duarte, O. C. M. B. - "Evaluating Voice Traffic Requirements on IEEE 802.11 Ad Hoc Networks", in Annals of

Telecommunications, ISSN 0003-4347, vol. 63, no. 5-6, pp. 321-329, June 2008.  
English, A4 size, 9 p., file: [VRD06.pdf](#)

- Campista, M. E. M., Moraes, I. M., Esposito, P. M., Amodei Jr., A., Cunha, D. O., Costa, L. H. M. K., and Duarte, O. C. M. B. - "The Ad Hoc Return Channel: a Low-Cost Solution for Brazilian Interactive Digital TV", in IEEE Communications Magazine, ISSN 0163-6804, vol. 45, no. 1, pp. 136-143, January 2007.  
English, A4 size, 8 p., file: [CME06b.pdf](#)
- Costa, L. H. M. K., Fdida, S., and Duarte, O. C. M. B. - "Incremental Service Deployment Using the Hop By Hop Multicast Routing Protocol", in IEEE/ACM Transactions on Networking, ISSN 1063-6692, vol. 14, no. 3, pp. 543 - 556, June 2006.  
English, Letter size, file: [CFD05.pdf](#)
- Ziviani, A., Fdida, S., Rezende, J. F., and Duarte, O. C. M. B., - "A TCP-Tailored Approach to the Location Management in Mobile Ad Hoc Networks", IEEE Communication Letters, IEEE Press, ISSN: 1089-7798, vol. 9, no. 12, pp. 1043-1045, December 2005.  
English, A4 size, 3 p., file: [ZFR05b.pdf](#)
- Cunha, D. O., Laufer, R. P., Moraes, I. M., Bicudo, M. D. D., Velloso, P. B., and Duarte, O. C. M. B. - "A Bio-Inspired Field Estimation Scheme for Wireless Sensor Networks", Annals of Telecommunications - Special Issue in Wireless Sensor Networks, vol. 60, n. 7/8, pp. 806-818, ISSN 0003-4347, July/August 2005.
- Ziviani, A., Fdida, S., Rezende, J. F., and Duarte, O. C. M. B. - "Improving the Accuracy of Measurement-Based Geographic Location of Internet Hosts", Computer Networks Journal, vol. 47, no. 4, pp. 503-523, Elsevier Science, ISSN 1389-1286, March 2005.  
English, A4 size, 33 p., file: [ZFRD04a.ps.gz](#)
- Gonçalves, P. A. da S., Rezende, J. F., Duarte, O. C. M. B., and Pujolle, G. - "Improving Feedback Merging for Source-Adaptive Layered Multicast Schemes", in Kluwer Cluster Computing Journal, ISSN 1386-7857, vol. 8, n. 1, pp. 77-88, March 2005.  
English, A4 size, 24 p., file: [GRDP03a.ps.gz](#)
- Velloso, P. B., Campista, M. E. M., Cunha, D. de O., Costa, L. H. M. K., and Duarte, O. C. M. B. - "Analysing the Performance of Wireless Local Area Networks with Collision Avoidance Mechanism", Revista da Sociedade Brasileira de Telecomunicações, vol. 19, no. 3, pp. 88-95, December 2004.  
English, A4 size, 8 p., file: [VCC04.pdf](#)
- Villela, B. A. M. and Duarte, O. C. M. B. - "Calculating the Maximum Throughput in Multihop Ad Hoc Networks", Lecture Notes in Computer Science, vol. 3124, pp. 443-449, ISSN: 0302-9743, ISBN: 3-540-22571-4, Springer-Verlag, , August 2004.  
English, A4 size, 6 p. file: [ViDu04a.ps.gz](#)
- Villela, B. A. M. and Duarte, O. C. M. B. - "Maximum Throughput Analysis in Ad Hoc Networks", Lecture Notes in Computer Science - Networking'2004, pp. 223-234, Vol. 3042, ISSN 0302-9743, ISBN 3-540-21959-5, Springer-Verlag, May 2004.  
English, A4 size, 12 p., file: [ViDu04.ps.gz](#)

- Ziviani, A., Wolfinger, B. E., Rezende, J. F., Duarte, O. C. M. B., and Fdida, S. - "Joint Adoption of QoS Schemes for MPEG Streams", *Multimedia Tools and Applications*, Vol. 26, n. 1, pp. 59-80, Springer Science+Business Media B.V., Formerly Kluwer Academic Publishers B.V., ISSN: 1380-7501, May 2004. English, A4 size, 35 p., file: [ZWRDF02b.ps.gz](#)
- Ziviani, A., Fdida, S., Rezende, J. F., and Duarte, O. C. M. B. - "Toward a Measurement-based Geographic Location Service", *Lectures Notes in Computer Science 3015*, Chadi Barakat and Ian Pratt (Eds.), pp. 43-52, ISSN 0302-9743, ISBN 3-540-21492-5, Springer-Verlag, 5th Passive & Active Measurement Workshop - PAM'2004, Antibes Juan-les-Pins, France, April 2004. English, A4 size, 10 p., file: [ZFRD04.ps.gz](#)
- Amorim, M. D. and Duarte, O. C. M. B. - "A Self-extracting Accurate Modeling for Bounded-delay Video Services", *Computer Communications*, ISSN 0140-3664, vol. 27, no. 3, pp. 197-207, Elsevier Science, 2004. English, A4 size, 11 p., file: [AmDu04a.pdf](#)
- Rubinstein, M. G., Duarte, O. C. M. B., and Pujolle, G. - "Scalability of a Mobile Agents Based Network Management Application", *IEEE/KICS Journal of Communications and Networks*, vol. 5, no. 3, pp. 240-248, ISSN 1229-2370, September 2003. English, A4 size, 9 p., file: [RDP02.ps.gz](#)
- Amorim, M. D., Duarte, O. C. M. B., and Pujolle, G. - "Distinguishing Video Quality Through Differential Matrices", *ACM Multimedia System Journal, Special Issue on Multimedia Distribution*, vol. 9, no. 1, pp. 94-103, ISSN 0942-4962, Springer, July 2003. English, A4 size, 9 p., file: [ADP02b.ps.gz](#)
- Teixeira, R. C. and Duarte, O. C. M. B. - "Evaluating the Impact of the Communication System on Distributed Virtual Environments", *Multimedia Tools and Applications*, vol. 19, no. 3, pp. 259-278, ISSN 1380-7501, Kluwer Academic Publishers, 2003. English, A4 size, 22 p., file: [TeDu99d.ps.gz](#)
- Ziviani, A., Rezende, J. F., and Duarte, O. C. M. B. - "Evaluating the Expedited Forwarding of Voice Traffic in a Differentiated Services Network", *International Journal of Communication Systems*, John Wiley & Sons, vol. 15, no. 9, pp. 799-813, ISSN: 1074-5351, November 2002. English, A4 size, 16 p., file: [ZRD00b.ps.gz](#)
- Costa, L. H. M. K., Fdida, S., and Duarte, O. C. M. B. - "Developing Scalable Protocols for Three-metric QoS-routing", *Computer Networks Journal*, ISSN 1389-1286, vol. 39, no. 6, pp. 713-727, Elsevier Science, August 2002. English, Letter size, 15 p., file: [CFD02.ps.gz](#)
- Amorim, M. D., Duarte, O. C. M. B., and Pujolle, G. - "Improving User's Satisfaction in Adaptive Multicast Video", *Journal of Telecommunication and Networks*, ISSN 1229-2370, vol. 4, n. 3, pp. 221-229, Seoul, Corea, 2002. English, A4 size, 18 p. file: [ADP99b.ps.gz](#)
- Villela, D. A. M. and Duarte, O. C. M. B. - "Improving Scalability on Reliable Multicast Communications", *Computer Communications*, ISSN 0140-3664, vol. 24,

no. 5-6, pp. 548-562, Elsevier Science, March 2001.

English, Letter size, 25 p., file: [ViDu99.ps.gz](#)

- Amorim, M. D., Duarte, O. C. M. B., and Pujolle, G. - "Multi-criteria Arguments for Improving the Fairness of Layered Multicast Applications", Broadband Communications, High Performance Networking, and Performance of Communication Networks - Networking 2000, Lectures Notes in Computer Sciences n° 1815, Edited by G. Pujolle, H. Perros, S. Fdida, U. Körner, and I. Stavrakakis, pp. 1-10, ISSN 0302-9743, Springer, 2000.  
English, A4 size, 11 p., file: [ADP00a.ps.gz](#)
- de Lima, H. M. and Duarte, O. C. M. B. - "A Point-to-Multipoint SR ARQ Scheme with Accumulative Acknowledgment for Satellite Communications", Computer Networks and ISDN Systems, vol. 30, n. 14, pp. 1311-1315, August 1998.
- de Lima, H. M. and Duarte, O. C. M. B. - "Comments on Evaluation of the Mean Error-Free Interval of a Noisy Channel", IEEE Transactions on Communications, Vol. 44, N. 8, pp. 918-920. August 1996.  
Portuguese, Letter size, 2 p., file: [LiDu96a.ps.gz](#)