# CURRICULUM VITAE

**João Abel Peças Lopes** was born in Portugal on May 1958. He obtained a degree in Electrical Engineering at the Faculty of Engineering - University of Porto in July 1981. From 1981 to 1982 he worked as Engineer in the department of studies of an electrical equipment manufacturer EFACEC. In November 1981 he joined the staff of the Department of Electrical Engineering at the University of Porto as teaching and research assistant. He worked on a research project in the area of *On-line transient stability assessment of electrical power systems using Pattern Recognition techniques*. In 1988 he completed his Ph.D. at the University of Porto, having reached the highest grade. In November 1996 he obtained his Aggregation degree also from University of Porto.

From 1988 until May 2000 he served as Assistant Professor at the Department of Electrical and Computer Engineering at the University of Porto. In May 2000 he became Associate Professor with Aggregation at the same Faculty, where he teaches in the graduation and post-graduation areas, being responsible of the following disciplines:

- Electrical Installations;
- Electrical Industrial Installations;
- Transients and Stability in Electrical Power Systems;
- Small Scale Power Production (M.Sc.);
- Quality of Service (M.Sc.).

From April 1996 to 2000 he collaborated with Iowa State University as Professor Collaborator in the post graduation Faculty, following an invitation from Prof. Aziz Fouad.

His main areas of research involve:

- On-line Power System security assessment and Power System Dynamics (Transient stability and voltage stability);
- Analysis of industrial networks with cogeneration plants;
- Analysis of the impact of the connection of small production plants in electrical distribution networks and isolated networks;
- Development of advanced power system simulation and analysis software to be integrated in a Distribution Management Systems (DMS), to be used by the Portuguese vendor EFACEC;
- Quality of service and regulatory issues.

Prof. Peças Lopes was responsible by INESC activities in the JOULE (JOU2-CT92-0053) project "Development and Implementation of an Advanced Control System for the Optimal Operation and Management of a Medium Size Power System with a Large Penetration from Renewable Power Sources". He was also one of the main researchers of the EU project JOULE/THERMIE - CARE - "*Advanced Control Advise for Power Systems with Large Scale Integration of Renewable Energy Sources*" JOR3CT960119, that aimed at the extension of the Joule project JOU2-CT92-0053 to larger networks, like the islands of Crete and Terceira.

He supervised consulting projects related with the impact analysis of the connection of wind parks in the electrical power system of Madeira island and the islands of Sal, S. Vicente and S. Tiago in the Republic of Cabo Verde (North coast of Africa). He was the responsible for several consultancy projects related with the impacts in the network that resulted from the connection of large wind parks in the electrical grid. He was also consultant for Scottish Hydro (U.K.) in the fields related with the integration of wind power.

He was the responsible for the INESC Porto participation in the THERMIE project - *"Dissemination of the advanced control technologies for isolated power systems with increased renewable energy penetration*", and he is the responsible of INESC Porto in the EU research project - MICROGRIDS - *Large Scale Integration of Micro Generation to Low Voltage Grids*.

He was the technical and scientific responsible of two projects developed for the Portuguese Regulator (ERSE):

- Quality of Service – characterisation of the present situation and recommendations;
- Technical Impact of the Integration in the Public Electric Power System from Different Types of Small Scale Production Plants.

He has been the responsible of a project for the Portuguese National Grid (REN) related with the definition of Power System Stabilisers to be installed in the Portuguese interconnected network.

He served as a consultant for ERSE regarding technical issues related with the definition of the model of Iberian Electricity Market.

He is also one of the experts for the energy domain of the Portuguese delegation that discusses the 6$^{th}$ EU framework programme.

Since mid 1995 Prof. Peças Lopes is the assistant coordinator of INESC Porto Power System Unit, managing, together with Prof. Manuel Matos, a research group having 25 researchers and post graduation students where 9 of them hold a Ph.D. degree.

Dr. Peças Lopes has presented more than 70 papers at various International Workshops and Conferences and in International Technical Journals, such as: Power Systems Computation Conference (PSCC), IFAC, CIGRE Colloquia, IEEE, Electric Machines and Power Systems Journal, Wind Energy.

He has been responsible for the supervision of 4 Ph.D. students and 8 M.Sc. students.

He has also been responsible for the development of computer programs for dynamic behaviour analysis, namely for isolated networks with a large wind power penetration.

He was co-responsible for the organisation of the *Encontros Luso-Afro-Brasileiros de Planeamento e Exploração de Redes de Energia* (ELAB). He was also Conference Chair of the IEEE Porto Power Tech. 2001 conference, held in Porto in September 2001.

He integrated three of the CIGRE specialised task forces in the study committee 38:

- TF38-02-11 “Indices Predicting Voltage Collapse Including Dynamic Phenomena”;
- TF38-02-12 – “Criteria and Countermeasures for Voltage Collapse”;
- TF 38-06-06 "Application of Neural Networks in Power Systems”;
- TF 38-01-10 - "Modelling and Simulation to Study New Forms of Generation”.

## List of Relevant Publications

J. A. Peças Lopes, F. Maciel Barbosa and J. P. Marques de Sá, "On line transient stability assessment and enhancement by pattern recognition techniques", Electric Machines and Power Systems Journal, Vol.15, nº15, Decembro 1988, pag. 293 to 310.

J. A. Peças Lopes and F. Maciel Barbosa, "Dynamic security assessment by pattern recognition techniques", ESRA Newsletter, Vol.6, nº1, April 1989, pag. 9;

J. A. Peças Lopes and M. A. Costa Matos, "On-line transient stability assessment of electric power systems using fuzzy techniques", Preprints of AIPAC-89, Vol II, pag. 85 a 90, IFAC Congress in Avanced Information Processing in Automatic Control, Nancy, 3 to 7 July 1989;

J. A. Peças Lopes, F. P. Maciel Barbosa, J. Cidrás Pidre, J. Martinez Velasco and C. Garrido, "Avaliação da segurança de sistemas eléctricos de energia: definições e métodos", 1ªs Jornadas Hispano-Lusas de Engenharia Eléctrica, Vigo, July 1990, Proc. 1ªs Jornadas Hispano-Lusas de Engenharia Eléctrica, pag. 771 to 780;

F. P. Maciel Barbosa, J. A. Peças Lopes, J. Sá da Costa, J. Martinez Velasco, J. Cidrás Pidre and M.A. Matos, "Aplicação de técnicas de engenharia do conhecimento na análise de segurança de sistemas eléctricos de energia", 1ªs Jornadas Hispano-Lusas de Engenharia Eléctrica, Vigo, July 1990, Proc. 1ªs Jornadas Hispano-Lusas de Engenharia Eléctrica, pag. 691 to 699;

M. A. Costa Matos, J. A. Peças Lopes e F. P. Maciel Barbosa, "Fuzzy classification for on-line transient stability assessment of electric power systems", Apresentada na 10th Power System Computation Conference, Graz - Austria, August 1990, Proceedings of 10th PSCC, pag. 865 to 871;

J. A. Peças Lopes, F. P. Maciel Barbosa and J. Cidrás Pidre, "Operation simulation of MV distribution networks with asynchronous local generation sources", MELECON' 91, Ljubljana - Yugoslavia, May 1991, Proceedings of MELECON'91;

J. A. Peças Lopes, F. Domingues Fernandes and F. P. Maciel Barbosa, "Indicadores do risco de instabilidade de tensão num sistema eléctrico de energia", 2ªs Jornadas Luso-Espanholas de Engenharia Electrotécnica, Coimbra, July 1991, Proc. 2ªs Jornadas Luso-Espanholas de Engenharia Electrotécnica, pag. 3.150 to 3.157;

J. Cidrás Pidre, J. A. Martinez Velasco, J. A. Peças Lopes and F. P. Maciel Barbosa, "Modelling of non-linear nodal admittances in load-flow analysis", IFAC Symposium on Power Plants and Systems, Munique, Alemanha, March 9-11, 1992, Proceedings IFAC Symposium;

J. A. Peças Lopes, Vincent Van Acker and Wim Bouckenooghe, "Avaliação das Quedas de Tensão Transitórias Subsequentes à Ligação de Geradores Assíncronos em Redes de Distribuição", ELAB'93, Porto, March 1993, Proc. of ELAB93, paper nº 20;

Ana Cláudia Sousa and J. A. Peças Lopes, "Técnicas para Arranque/Paragem Optimizado de Sistemas de Climatização de Grandes Edifícios", 3ªs Jornadas Hispano-Lusas de Engenharia Eléctrica, Barcelona, July 1993, Proc. of 3ªs Jornadas Hispano-Lusas de Engenharia Eléctrica;

J. N. Fidalgo, J. A. Peças Lopes, Vladimiro Miranda and L. B. Almeida, "Fast Assesment of Transient Stability Margins by a Neural Network Approach", 11th PSCC, Avignon, August 1993, Proceedings 11th PSCC, pag. 81 to 87;

M. A. Matos, N. D. Hatziargyriou, J. A. Peças Lopes and G. C. Contaxis, "Fuzzy Analysis of Steady State Security for On-Line Assessment", Athens Power Tech. Conference, Athens, September 1993, Proceedings APT, pag. 280 to 284;

J. A. Peças Lopes, F. M. Fernandes and M. A. Matos, "Fast Evaluation of Voltage Collapse Risk Using Pattern Recognition Techniques", Athens Power Tech. Conference, Athens, September 1993, Proceedings APT, pag. 357 to 361;

D. Niebur, A. Germond, J. A. Peças Lopes, D. Sobajic e C. Liu, "Artificial Intelligence Techniques in Power System Stability Assessment", Proc. CIGRE Seminar, Florianapolis, September 1993;

Dagmar Niebur et al., "Artificial Neural Networks for Power Systems: A Literature Survey", Review: Engineering Inteligent Systems, Vol. 1, n. 3, December 1993, pag. 133 to 158;

J. A. Peças Lopes and N. Hatziargyriou, "Application of Learning from Examples Methods for On-line Dynamic Security Assessment of Electric Power Systems - State of the Art", Invited paper IV SEPOPE, Proc. IV SEPOPE, Foz do Iguaçu, Brazil, May 1994, paper IP (02);

V. Miranda, J. Fidalgo, J. A. Peças Lopes and L. B. Almeida, "Real Time Preventive Actions for Transient Stability Enhancement with a Hybrid Neural Network - Optimization Approach", Paper presented to the IEEE Summer Meeting, San Francisco, July 1994, published on IEEE Trans. on PWRS, Vol. 10, May 1995, pag. 1029 to 1035.

N. Hatziargyriou, S. Papathanassiou, J. A. Peças Lopes e V. Van Acker, "Pattern Recognition Versus Decision Trees Methods - A Case Study in Fast Dynamic Security Assessment of Autonomous Power Systems with a Large Penetration from Renewables", Comunicação apresentada ao ISAP 94, Montepellier, Setembro de 1994, publicada nos Proceedings do ISAP 94, pag. 513 a 519;

E. Nogaret et. al., "Development and Implementation of an Advanced Control System for Medium Size Wind-Diesel Systems", Apresentada na European Wind Energy Conference 94, Thessalonic, Greece, October 1994, Proceedings of EWEC'94.

N. Hatziargyriou, S. Papathanassiou, J. A. Peças Lopes et. al., " Fast Dyamic Security Assessment of Autonomous Power Systems with a Large Penetration from Wind - The Lemnos Study Case", Apresentada na European Wind Energy Conference 94, Thessalonic, Greece, October 1994, Proceedings of EWEC'94.

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Dagmar Niebur and Task Force members, TF 38-06-06 da CIGRE, "Artificial neural networksd for power systems", Review ELECTRA nº 159, April de 1995, pag. 76 to 101.

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Manuel Matos, N. Hatziargyriou and J. A. Peças Lopes, "Fuzzy Steady State Security Assessment", Sotckholm Power Tech. Conference, June 1995, Proceedings of SPT, pag. 635 a 640;

J. N. Fidalgo, J. A. Peças Lopes and V. Miranda, "Neural Networks Applied to Preventive Control Measures for the Dynamic Security of Isolated Power Systems with RenewablesPresented to the IEEE Winter Power Meeting, Baltimore, EUA, January 1996.

J. A. Peças Lopes, "Operation of Isolated Systems with a Large Penetration of Wind Power Generation", Invited paper presented at V SEPOPE, Recife (Brazil), May 1996, (Paper IP-43), Proceedings of the V SEPOPE, pag. 1033 to 1041.

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J. N. Fidalgo, J. A. Peças Lopes and V. Miranda, "Dynamic Security Monitoring and Preventive Control in Isolated Systems with Wind Power Generation Using Artificial Neural Networks", Presented to the 12th PSCC, August 1996, Desden, Germany, Proc. of 12$^{th}$ PSCC.

N. Hatziargyriou and J. A. Peças Lopes, "Dynamic Security Assessment of Autonomous Power Systems with a Large Penetration from Wind Power", SRBE KBVE - Revue E - E Tidjdschrift, December 1996 (Special edition on security assessment).

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N. Hatziargyriou, J. Peças Lopes et al., "Control Requirements for Optimal Operation of Large Isolated Systems with Increased Wind Power Penetration", Paper presented to the European Wind Energy Conference, 1997.

J. Peças Lopes, Fernando Fernandes, "Fast evaluation of Voltage Collapse Risk Using Machine Learning Techniques", Invited paper presented to the VI SEPOPE, S. Salvador da Baia, Maio de 1998.

J. Riquelme, A. Gómez Exposito, J. Peças Lopes e J. Martínez, "Overload Screening of Transmission Systems Using Neural Networks", Comunicação apresentada à 11th International Conference on Industrial Engineering Applications of Artificial Intelligence and Expert Systems, IEA'98, Castellon - Spain, June 1998.

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N. Hatziargyriou, E. Karapidakis, Helena Vasconcelos and J. A. Peças Lopes "On-line Dynamic Security Assessment of Power Systems in Large Islands with High Wind Power Penetration", Presented to the 13th Power Systems Computation Conference Norway, July 1999.

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J. Peças Lopes, Manuel Matos, J. Pereira da Silva, J. Tomé Saraiva, Ana Claudia Sousa, "Qualidade de Serviço – Caracterização da situação e recomendações", Book Edited by ERSE, ISBN: 972-97336-9-4, January 1998.

João Peças Lopes, José Pereira Silva, Manuel Matos, João Tomé Saraiva, "Quality of Service at the Distribution Level", Proceedings of International Conference UIE 2000, Lisbon, November 2000.