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TIAGO TRAVASSOS VIEIRA VINHOZA

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EMPLOYMENT

Machine Learning Specialist — **INESC Technology and Science, Portugal** — **Sep. 2014 – Nov. 2015**

- Development of an algorithm to automatically refine Bayesian Networks. Structure and parameter learning.
- Built predictive models for breast cancer based on mammography reports. Classification algorithms.

Data Mining and Signal Processing Expert — **Instituto de Telecomunicações, Porto, Portugal** — **Jun. 2012 – May 2014**

Worked as part of the DigiScope (Digitally Enhanced Stethoscope for Clinical Usage) team

- Feature engineering on heart sounds to capture relevant information such as presence/absence of heart murmurs.
- Built predictive models to assess heart condition. Clustering, classification algorithms and statistical signal processing.

Wireless Communications and Networking Specialist — **Instituto de Telecomunicações, Porto, Portugal** — **Dec. 2008 – Jun. 2012**

Member of the Distributed Routing and Infotainment through Vehicular Inter-Networking project (Sep.2009–Jun.2012)

- Used mathematical modeling to propose a vehicle-to-vehicle (V2V) communications channel model that accounts for vehicles as 3D obstacles and assessing their impact on vehicular ad-hoc network performance metrics.

Worked on Network Coding for Robust Architectures in Volatile Environments project (Dec. 2008 – Dec. 2010)

- Modeled the delay distribution of random linear network coding using a Markov chain model.
- Devised a distributed storage scheme that relies on coding to provide a robust and low complexity solution achieving a prescribed level of confidentiality.

Post-Doc Researcher — **Pontificia Universidade Católica do Rio de Janeiro** — **Jan. 2008 – Aug. 2008**

- Channel Estimation and receiver design for OFDM and multicarrier CDMA systems

EDUCATION

Rio de Janeiro, RJ Brazil — **Pontifícia Universidade Católica do Rio de Janeiro** — **1995-1999, 2001-2007**

- Ph.D. in Electrical Engineering, 2007
- M.Sc. in Electrical Engineering, 2003
- Diploma in Electrical Engineering, 1999.
- Relevant Coursework: Random Processes, Statistical Theory of Communications, Information Theory, Detection and Estimation, Neural Networks, Linear Algebra, Calculus, Communications Networks, Communication Systems.

OUTCOMES

Most Relevant Journal and Conference Publications

- E. Almeida, P. Ferreira, T. T. V. Vinhoza, I. Dutra, Y. Wu, E. Burnside, "ExpertBayes: Automatically Refining Manually Built Bayesian Networks", International Conference on Machine Learning and Applications,Detroit, MI, USA, 2014.
- J. Pedrosa, A. Castro, T. T. V. Vinhoza, "Heart Sound Segmentation and Murmur Detection in Pediatric Phonocardiograms", Proc. of the IEEE EMBC 2014, Chicago, IL, USA, 2014.
- 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, December 2012.
- M. Boban, T. T. V. Vinhoza, M. Ferreira, J. Barros, O. K. Tonguz, "Impact of Vehicles as Obstacles in Vehicular Adhoc Networks", IEEE JSAC (Special issue on Vehicular Communications and Networks), January 2011

ADDITIONAL EXPERIENCE AND AWARDS

- **Teaching:** Taught full-credit graduate level Information Theory course. University of Porto (Winter 2010)**.** TA of several graduate and undergraduate level courses at PUC-Rio (1 per semester from 2002-2008): Random Processes, Probabilistic Models, and Statistical Theory of Communications, among others.

- **Additional Coursework (MOOC):** *Coursera*: Machine Learning, R Programming, Exploratory Data Analysis, Data Analysis and Statistical Inference, *edX*: Learning from Data.

- **Awards:** Ciência 2008 research contract by the Portuguese Foundation for Science and Technology, Full M.Sc (2001) and Ph.D. scholarships (2003), Academic Excellence Certificate (1999).

- **Certificate of Advanced English (CAE):** University of Cambridge – grade: A.

PROGRAMMING LANGUAGES AND TECHNOLOGIES

- Python
- MATLAB/Simulink
- WEKA
- Java (basic), R (basic)