

Francisco Pereira

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1. Career summary

Professional positions

Aug 2015 - present	Full Professor, Transport Modeling division Technical University of Denmark, Department of Management Engineering (DTU ME) Machine Learning for Smart Mobility group (http://mlsm.man.dtu.dk)
Feb 2015 - Aug 2015	Executive Director of Transportation Education Committee Massachusetts Institute of technology (MIT), ITS Lab
2011 - 2015	Senior Research Scientist Singapore-MIT Alliance for Research and Technology (SMART/MIT)
2010 - 2014	Professor Auxiliar, Nomeação definitiva (equiv. to tenure) Department of Informatics Engineering, University of Coimbra
2005 - 2010	Professor Auxiliar Department of Informatics Engineering, University of Coimbra
2009 - 2010	Postdoctoral Research Fellow Massachusetts Institute of Technology (MIT), Senseable City Lab
2000 - 2005	Junior Professor (during PhD studies) Department of Informatics Engineering (DEI), University of Coimbra

Education

Jan 2005	PhD in Informatics Engineering, University of Coimbra, Portugal <i>Cum Laude</i> Area: Artificial Intelligence Thesis: "A Computational Model of Creativity"
Feb 2000	MSc in Informatics Engineering, University of Coimbra, Portugal <i>Muito Bom (maximum grade)</i> Area: Artificial Intelligence Dissertation: "An interactive system for conceptual maps construction"
Sep 1996	Licenciatura in Informatics Engineering (LEI), University of Coimbra, Portugal <i>Average: 16</i> Area: Computer Science Final year project: "Automatic music composition", 20 (maximum grade)

Research topics

Machine Learning, big data, transport modeling and prediction, Intelligent transportation systems, mobility analysis, behavior modeling

2. Publication record

Books

1. Antoniou, C., **Pereira, F. C.** and Dimitriou, L. (Eds.), "Mobility Patterns, Big Data and Transport Analytics", Elsevier, *upcoming*
2. **Pereira, F. C.** , "Creativity and AI: A Conceptual Blending Approach", Mouton de Gruyter, ISBN 978-3110186093, December, 2007.

Edited special issues

3. Guo, B., Zhang, D., Yu, Z. and **Pereira, F. C.** , "Cross-community mining", Special issue of Personal and Ubiquitous Computing Journal, ISSN: 1617-4909, May 2013.
4. **Pereira, F. C.** , Antoniou, C. and Dimitriou, L., "Social network analysis in future transportation systems: Contributions on observability, behaviour and structure", Special issue on Transport Research Part C, ISSN: 0968-090X, Volume 91, June 2018, Pages 369-370.

Journal articles

5. Seshadri, R., Gupta, S., Atasoy, B., Akkinapally, A., **Pereira, F. C.**, Tan, Gary, Ben-Akiva, M., "Real-Time Predictive Control Strategy Optimization". Transportation Research Record: Journal of the Transportation Research Board, Transportation Research Board. *forthcoming*
6. Rodrigues, Filipe, and **Pereira, F. C.**, "Beyond expectation: Deep joint mean and quantile regression for spatio-temporal problems". IEEE Transactions on Neural Networks and Learning Systems (T-NNLS), *forthcoming*
7. Borysov, S., Rich, J. and **Pereira, F. C.** "How to generate micro-agents? A deep generative modeling approach to population synthesis", Transportation Research Part C: Emerging Technologies, Volume 106, Pages 73-97, 2019
8. Antunes, F., Ribeiro, B. and **Pereira, F. C.** "Active learning metamodeling for policy analysis: Application to an emergency medical service simulator", Simulation Modelling Practice and Theory, Volume 97, 2019.
9. Rodrigues, Filipe, Ioulia Markou, and **Pereira, F. C.**, "Combining time-series and textual data for taxi demand prediction in event areas: A deep learning approach", Information Fusion, Volume 149, Pages 120-129, 2019
10. M. Dastjerdi, A.; Kaplan, S.; Abreu, J.; Nielsen, O. A. and **Pereira, F. C.**, "Use intention of mobility-management travel apps: The role of users goals, technophile attitude and community trust", Transportation Research Part A: Policy and Practice, Volume 126, Pages 114-135, 2019
11. Markou, I., Kaiser, K. and **Pereira, F. C.** "Predicting taxi demand hotspots using automated Internet Search Queries". Transport Research Part C, Volume 102, Pages 73-86, 2019
12. Markou, I., Rodrigues, F. and **Pereira, F. C.** "Is travel demand actually deep? An application in event areas using semantic information". IEEE Transactions on Intelligent Transport Systems, February 2019.
13. M. Dastjerdi, A.; Kaplan, S.; Abreu, J.; Nielsen, O. A. and **Pereira, F. C.**, "Participating in Environmental Loyalty Program with a Real-time Multimodal Travel App: User Needs, Environmental and Privacy Motivators". Transport Research Part D. Volume 67, Pages 223-243, 2019
14. Petersen, N. Rodrigues, Filipe, and **Pereira, F. C.**, "Multi-output Bus Travel Time Prediction with Convolutional LSTM Neural Network". Engineering Systems With Applications, Volume 120, Pages 426-435, 2019
15. Rodrigues, Filipe, and **Pereira, F. C.**, "Heteroscedastic Gaussian processes for uncertainty modeling in large-scale crowdsourced traffic data". Transport Research Part C, Volume 95, Pages 636-651, October 2018
16. Lee, D., **Pereira, F. C.**, and Derrible, S. "Comparison of Four Types of Artificial Neural Networks and a Multinomial Logit Model for Travel Mode Choice Modeling". Transportation Research Record: Journal of the Transportation Research Board, Transportation Research Board. September 20, 2018

17. Prakash, A., Seshadri, R., Antoniou, C., **Pereira, F. C.**, and Ben-Akiva, M. "Improving scalability of generic online calibration for real-time dynamic traffic assignment systems". Transportation Research Record: Journal of the Transportation Research Board, Transportation Research Board. September 7, 2018
18. Kim, Y., Ghorpade, A., Zhao, F., **Pereira, F. C.**, Y., Zegras, C. and Ben-Akiva, M. "Activity Recognition for a Smartphone and Web Based Human Mobility Sensing System", IEEE Intelligent Systems, Volume: 33 , Issue: 4 , Jul./Aug. 2018
19. Antunes, F., Ribeiro, B. and **Pereira, F. C.** "Efficient Transport Simulation With Restricted Batch-Mode Active Learning". IEEE Transactions on Intelligent Transport Systems, Volume: 19 , Issue: 11 , Nov. 2018.
20. Ruimin, L., **Pereira, F. C.**, and Ben-Akiva, M. "Overview of traffic incident duration analysis and prediction". European Transport Research Review 10 (2), 22. Springer. May 2018.
21. Rodrigues, F., **Pereira, F. C.**. "Multi-output Gaussian processes for crowdsourced traffic data imputation". IEEE Transactions on Intelligent Transport Systems, April 2018.
22. Li, C., Shahid, A., Zegras, C., Ben-Akiva, M., Zhao, F., **Pereira, F. C.**, Qin, Z. and Zhao, J. "Enabling Transit Service Quality Co-monitoring Through a Smartphone-Based Platform", Transportation Research Record: Journal of the Transportation Research Board, Transportation Research Board. Volume 2649. ISSN: 0361-1981. 2017
23. Zhang, H., Seshadri, R., Prakash, A., **Pereira, F. C.**, Antoniou, C. and Ben-Akiva, M. "Improved Calibration Method for Dynamic Traffic Assignment Models: Constrained Extended Kalman Filter", Transportation Research Record: Journal of the Transportation Research Board, Transportation Research Board. Volume 2667. ISSN: 0361-1981. 2017
24. Prakash, A., Seshadri, R., **Pereira, F. C.**, Antoniou, C. and Ben-Akiva, M. "Reducing the Dimension of Online Calibration in Dynamic Traffic Assignment Systems". Transportation Research Record: Journal of the Transportation Research Board, Transportation Research Board. Volume 2667. ISSN: 0361-1981. 2017
25. Markou, I., Rodrigues, F. and **Pereira, F. C.** "Demand Pattern Analysis of Taxi Trip Data for Anomaly Detection and Explanation". Transportation Research Record: Journal of the Transportation Research Board, Transportation Research Board. Volume 2643. ISSN: 0361-1981. 2017
26. Rodrigues, F., Lourenco, M., Ribeiro, B. and **Pereira, F. C.** "Learning Supervised Topic Models for Classification and Regression from Crowds". IEEE Transactions on Patterns Analysis and Machine Intelligence (IEEE T-PAMI), January, 2017.
27. Antunes, F.; Ribeiro, B. and **Pereira, F. C.** "Probabilistic Modeling and Visualization for Financial Risk Data Analytics". Applied Soft Computing. Springer. *Accepted, Forthcoming*.
28. Rodrigues, F., Borysov, S., Ribeiro, B. and **Pereira, F. C.** "A Bayesian additive model for understanding public transport usage in special events". IEEE Transactions on Patterns Analysis and Machine Intelligence (IEEE T-PAMI), December 2016.
29. Chaniotakis, M., Antoniou, C. and **Pereira, F. C.**, "Mapping Social Media for Transportation Studies", IEEE Intelligent Systems. 31(6), 64-70. 2016
30. Lovric, M., Raveau, S., Adnan, M., **Pereira, F. C.**, Basak, K., Loganathan, H., Ben-Akiva, M., "Evaluating Off-peak Pricing Strategies in Public Transportation using an Activity-Based Approach". Transportation Research Record: Journal of the Transportation Research Board, Transportation Research Board. Vol 2544, 2016.
31. O' Sullivan, A., **Pereira, F. C.**, Zhao, J. and Koutsopoulos, H. "Uncertainty in Bus Arrival Time Predictions: Treating Heteroscedasticity with a Meta-Model Approach". IEEE Transactions on Intelligent Transport Systems. May, 2016.
32. Zhao, F., **Pereira, F. C.**, Ball, R., Kim, Y., Han, Y., Zegras, C. and Ben-Akiva, M., "Exploratory Analysis of a Smartphone-Based Travel Survey in Singapore". Transportation Research Record: Journal of the Transportation Research Board, Transportation Research Board, Vol 2494, 2015.
33. Antoniou, C., Azevedo, C., Lu, L. **Pereira, F. C.** and M., Ben-Akiva, M. "W-SPSA in practice: Approximation of weight matrices and calibration of traffic simulation models". Transport Research Part C, 59, 129-146, 2015

34. **Pereira, F. C.**, Rodrigues, F., Polisciuc, E. and Ben-Akiva, M. "Why so many people? Explaining non-habitual transport overcrowding with internet data". *IEEE Transactions on Intelligent Transport Systems*, vol 16, No 3, June 2015
35. Ruimin, L., **Pereira, F. C.**, and Ben-Akiva, M. "Competing risk mixture model and text analysis for sequential incident duration prediction". *Transport Research Part C*. Volume 54, May 2015, Pages 74-85.
36. Ruimin, L., **Pereira, F. C.**, and Ben-Akiva, M. "Competing Risks Mixture Model for Traffic Incident Duration Prediction". *Accident Analysis & Prevention*. Elsevier. Volume 75, February 2015, Pages 192-201.
37. Jiang, S, Alves, A., Rodrigues, F., **Pereira, F. C.** and Ferreira, J. "Mining point-of-interest data from social networks for urban land use classification and disaggregation". *Computers, Environment and Urban Systems*. Elsevier. Available online 12 January 2015.
38. Leitão, A., Vinhas, A., Machado, P. and **Pereira, F. C.**. "A Genetic Algorithms Approach for Inverse Shortest Path Length Problems". *International Journal of Natural Computing Research (IJNCR)*, IJNCR 4.4 (2014): 36-54. Web. 22 Jan. 2015.
39. Ding, J., Gao, S., Jenelius, E., Rajmani, M., Huang, H., Long, M., Ben-Akiva, M. and **Pereira, F. C.**. "Routing Policy Choice Set Generation in Stochastic Time-Dependent Networks: Case Studies for Stockholm and Singapore". *Transportation Research Record: Journal of the Transportation Research Board*, vol 2466, 2014.
40. Robinson, S., Narayanan, B., Toh, N. and **Pereira, F. C.**. "Methods for pre-processing smartcard data to improve data quality". *Transport Research Part C*. Volume 49, Pages 43-58, Elsevier, December 2014.
41. Rodrigues, F., **Pereira, F. C.** and Ribeiro, B. "Gaussian Process Classification and Active Learning with Multiple Annotators". *Journal of Machine Learning Research Workshop and Conference Proceedings (JMLR W&CP)*, 32 (1) : 433 - 441, 2014.
42. **Pereira, F. C.**, Bazzan, A. and Ben-Akiva, M. "The role of context in transport prediction". *IEEE Intelligent Systems Magazine*, April 2014.
43. **Pereira, F. C.**, Antoniou, C., Fargas, J. and Ben-Akiva, M. "A meta-model for estimating error bounds in real-time traffic prediction systems". *IEEE Transactions on Intelligent Transport Systems*, May 2014.
44. **Pereira, F. C.**, Rodrigues, F. and Ben-Akiva, M. "Using data from the web to predict public transport arrivals under special events scenarios". *Journal of Intelligent Transport Systems*. Taylor and Francis, 2013.
45. **Pereira, F. C.**, Rodrigues, F. and Ben-Akiva, M. "Text analysis in incident duration prediction". *Transport Research Part C*. Volume 37, Pages 177-192, Elsevier, 2013.
46. Cottrill, C., **Pereira, F. C.**, Zhao, F., Dias, I., Lim, H. B., Ben-Akiva, M. and Zegras, C. "Future Mobility Survey: Experience in Developing a Smartphone-Based Travel Survey in Singapore". *Transportation Research Record: Journal of the Transportation Research Board*, Vol. 2354, Pages 59-67, Transportation Research Board, 2013.
47. Rodrigues, F., **Pereira, F. C.** and Ribeiro, B. "Sequence Labeling with Multiple Annotators". *Machine Learning*. Springer. 2013
48. Rodrigues, F., **Pereira, F. C.** and Ribeiro, B. "Learning from Multiple Annotators: Distinguishing Good from Random Labelers". *Pattern Recognition Letters*. Elsevier. 2013
49. Rodrigues, F., Alves, A., Jiang, S., Ferreira, J. and **Pereira, F. C.** "Estimating disaggregated employment size from Points-of-Interest and census data: From mining the web to model implementation and visualization", *International Journal on Advanced Intelligent Systems*, vol. 7, 2013.
50. Abreu, J., **Pereira, F. C.**, and Ferrao, P. , "Using pattern recognition to identify habitual behavior in residential electricity consumption", *Energy and Buildings*, Elsevier, June 2012
51. **Pereira, F. C.**, Costa, H. and Pereira, N. , "An Off-line Map-Matching Algorithm for Incomplete Map Databases", *European Transport Research Review*, Springer, July 2009

52. Alves, A. O., Antunes, B., **Pereira, F. C.** and Bento, C. , "Semantic Enrichment of Places: Ontology Learning from Web", *International Journal of Knowledge-Based & Intelligent Engineering Systems*, Vol. 13, # 1, pp. 19-30, IOS Press, January 2009
53. **Pereira, F. C.** and Cardoso, A. , "Experiments with Free Concept Generation in Divago (revised and updated)", *Knowledge Based Systems*, Vol. 19, # 7, pp. 459-471, Elsevier, November 2006
54. Gomes, P., Bento, C., **Pereira, F. C.**, Seco, N., Ferreira, J., Carreiro, P. and Paiva, P. , "The importance of retrieval in creative design analogies", *Knowledge Based Systems*, Vol. 19, # 7, pp. 480-488, Elsevier, November 2006
55. Gomes, P., **Pereira, F. C.**, Paiva, P., Carreiro, P., Ferreira, J. and Bento, C. , "Rebuilder: a case-based reasoning approach to knowledge management in software design", *Engineering Intelligent Systems*, Vol. 13, # 4, CRL Publishing, December 2005
56. Gomes, P., **Pereira, F. C.**, Paiva, P., Seco, N., Carreiro, P., Ferreira, J. and Bento, C. , "Using WordNet for case-based retrieval of UML models", *AI Communications*, Vol. 1, # 17, IOS Press, January 2004
57. **Pereira, F. C.** and Cardoso, A. , "Optimality Principles for Conceptual Blending: A First Computational Approach", *AISB Journal*, Vol. 1, #4, AISB, July 2003

Book chapters

58. de Palma, A., Zhao, F., Ghorpade, A., , **Pereira, F. C.** and Moshe Ben-Akiva, "Big Data and Automated Travel Surveys," to appear in *Big Data and Transport Policies* (French).
59. Antunes, F., O'Sullivan, A., Rodrigues, F. and **Pereira, F. C.** "A Review of Heteroscedasticity Treatment with Gaussian Processes and Quantile Regression Meta-models". In *Seeing Cities Through Big Data*, Springer Geography, Piyushimita Thakuriah et al. (Eds), 978-3-319-40900-9.
60. Alves, A. O. and **Pereira, F. C.** "Lightweight Ontologies to Represent Semantically Enriched Places". In *Perspectives of Ontology Learning*. Johana Volker and Jens Lehman. IOS Press. 2014.
61. **Pereira, F. C.**, Vaccari, A., Girardin, F., Chiu, C., Ratti, C.. "Crowdsensing from the web: Harvesting for citizen experience in the urban space". In *From Social Butterfly to Engaged Citizen - Urban Informatics, Social Media, Ubiquitous Computing, and Mobile Technology to Support Citizen Engagement*. Foth, M.; Forlano, L.; Gibbs, M.; Satchell, C. (Eds). MIT Press, November 2011.
62. Edelkamp, S., **Pereira, F. C.**, Sulewski, D. and Costa, H.. "Collaborative Map Generation - Survey and Architecture Proposal". Hoeven, F.; Shaick, J.; Speck, S. C. and Smith, M. J. (Eds.): *Urbanism on Track - Application of Tracking Technologies in Urbanism*, IOS Press, December, 2008.
63. Gomes, P., Seco, N., **Pereira, F. C.**, Paiva, P., Carreiro, P., Ferreira, J. and Bento, C. , "An Approach to Software Design Reuse Using Case-Based Reasoning and WordNet", in *Integrated Intelligent Systems for Engineering Design*, pp. 119-134, X. F. Zha and R. J. Howlett, IOS Press, January 2006.
64. Macedo, L., **Pereira, F. C.**, Grilo, C. and Cardoso, A. , "A Computational Model for Creative Planning", in *Mind Modelling: A Cognitive Science Approach to Reasoning, Learning and Discovery*, pp. 193-208, U. Schmid, J. Krems, & F. Wysotzki, Pabst Science Publishers, January 1998

Peer-reviewed conference proceedings

65. Peled, I., Lee, K., Jiang, Y., Dauwels, J., and **Pereira, F. C.** Preserving Uncertainty in Demand Prediction for Autonomous Mobility Services. In 2019 IEEE Intelligent Transportation Systems Conference (ITSC) (pp. 3043-3048). IEEE. October, 2019
66. Rodrigues, F. and **Pereira, F. C.** Deep learning from crowds. In Thirty-Second AAAI Conference on Artificial Intelligence. April, 2018
67. Zhang, H., Seshadri, R., Prakash, A., **Pereira, F. C.**, Antoniou, C. and Ben-Akiva, M, "An Improved Calibration Method for Dynamic Traffic Assignment Models: Constrained Extended Kalman Filter". Transportation Research Board 96th Annual Conference. Washington DC. January 2017.

68. Yang, D., Carrion, C., **Pereira, F. C.**, Xiong, C. and Zhang, L. "Modeling Daily Activity Patterns: An Inductive Approach to Learning Probabilistic Context-Free Grammar". Transportation Research Board 96th Annual Conference. Washington DC. January 2017.
69. Markou, I., Rodrigues, F., and **Pereira, F. C.**. "Demand pattern analysis of taxi trip data for anomaly detection and explanation". Transportation Research Board 96th Annual Conference. Washington DC. January 2017.
70. Adnan, M., **Pereira, F. C.**, Azevedo, C., Basak, K., Loh, K., Loganathan, H., Peng, Z., and Ben-Akiva, M. "Evaluating Disruption Management Strategies in Rail Transit using SimMobility Mid-term Simulator: A study of Singapore MRT North-East line". Transportation Research Board 96th Annual Conference. Washington DC. January 2017.
71. Prakash, A., Seshadri, R., Antoniou, C., **Pereira, F. C.** and Ben-Akiva, M. "Reducing the Dimension of Online Calibration in Dynamic Traffic Assignment Systems". Transportation Research Board 96th Annual Conference. Washington DC. January 2017.
72. Adnan, M., **Pereira, F. C.**, Lima Azevedo, C. M., Basak, K., Lovric, M., Raveau, S., Zhu, Y., Ferreira, J., Zegras, C. and Ben-Akiva, M. "SimMobility: A Multi-Scale Integrated Agent-based Simulation Platform". Transportation Research Board 95th Annual Conference. Washington DC. January 2016.
73. Gupta, S., Seshadri, R., Atasoy, B., Wang, S., Vu, V. A., Tan, Gary, **Pereira, F. C.**, Dong, W., Lu, Y., Antoniou, C., Ben-Akiva, M., "Real Time Optimization of Network Control Strategies in DynaMIT2.0", Transportation Research Board 95th Annual Conference. Washington DC. January 2016.
74. Li, C., Zegras, C., Zhao, F., **Pereira, F. C.**, Nawarathne, K., Qin, Z., and Ben-Akiva, M., "FMS-TQ: combining smartphone and iBeacon technologies in a transit quality survey," Transportation Research Board 95th Annual Conference. Washington DC. January 2016.
75. Lovric, M., Raveau, S., Adnan, M., **Pereira, F. C.**, Basak, K., Loganathan, H., Ben-Akiva, M., "Evaluating Off-peak Pricing Strategies in Public Transportation using an Activity-Based Approach". Transportation Research Board 95th Annual Meeting. Washington D.C. January 2016.
76. Lourenco, M., Rodrigues, F., Ribeiro, B. and **Pereira, F. C.**, "Learning Supervised Topic Models from Crowds". Third AAAI Conference on Human Computation and Crowdsourcing (HCOMP-2015), San Diego, USA, November 2015.
77. Zhao F., **Pereira, F. C.**, Ghorpade, A., Zegras, C., and Ben-Akiva M., "Quantifying Mobility: Pervasive Technologies for Transport Modeling", Adjunct Proceedings of the 2015 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp 2015) and the 2015 ACM International Symposium on Wearable Computers (ISWC' 2015), September 2015.
78. Lu, Y., Seshadri, R., **Pereira, F. C.**, O'Sullivan, A, Antoniou, C. and M., Ben-Akiva, M. "DynaMIT2.0: Architecture Design and Preliminary Results on Real-time Data Fusion for Traffic Prediction and Crisis Management". Intelligent Transportation Systems Conference (IEEE ITSC 2015). Islas Canarias, Spain, September 2015
79. Antoniou, C., Azevedo, C., Lu, L. **Pereira, F. C.** and M., Ben-Akiva, M. "W-SPSA in practice: Approximation of weight matrices and calibration of traffic simulation models". The 21st International Symposium on Transportation and Traffic Theory (ISTTT21). Kobe, Japan, August, 2015.
80. Lu, Y., Adnan, M., Basak, K., **Pereira, F. C.**, Carrion, C., Saber, V., Loganathan, H. and Ben-Akiva, M. "SimMobility Mid-Term Simulator: A State of the Art Integrated Agent Based Demand and Supply Model". Transport Research Board (TRB) annual meeting. Washington, D. C. January, 2015.
81. Ghorpade, A., **Pereira, F. C.**, Zhao, F., Zegras, C. and Ben-Akiva, M. "An integrated stop-mode detection algorithm for real world smartphone-based travel survey". Transport Research Board (TRB) annual meeting. Washington, D. C. January, 2015.
82. Ding, J., Gao, S., Jenelius, E., Rajmani, **Pereira, F. C.** and M., Ben-Akiva, M. "A Latent-Class Routing Policy Choice Model with Revealed Preference Data". Transport Research Board (TRB) annual meeting. Washington, D. C. January, 2015.
83. Zhao, F., **Pereira, F. C.**, Ball, R., Kim, Y., Han, Y., Zegras, C. and Ben-Akiva, M., "Exploratory Analysis of a Smartphone-Based Travel Survey in Singapore". Transport Research Board (TRB) annual meeting. Washington, D. C. January, 2015.

84. Nawarathne, K., Ball, R., **Pereira, F. C.**, Luo, J. "Dead Reckoning on Smartphones to Reduce GPS Usage". 13th International Conference on Control, Automation, Robotics and Vision (ICARCV 2014), Singapore, December, 2014.
85. Rodrigues, F., **Pereira, F. C.** and Ribeiro, B. "Gaussian Process Classification and Active Learning with Multiple Annotators". International Conference on Machine Learning (ICML 2014), Beijing, June, 2014 (published as JMLR W&CP).
86. Kim, Y., **Pereira, F. C.**, Zhao, F., Ghorpade, A., Ben-Akiva, M. and Zegras, C. "Activity recognition for smartphone based travel surveys based on cross-user history data". 22nd International Conference on Pattern Recognition (ICPR 2014). Stockholm, August, 2014.
87. Antunes, F. N., O'Sullivan A., Rodrigues, F., and **Pereira, F. C.**, "Accounting for Heteroscedasticity in Big Data". Proc. NSF Workshop on Big Data and Urban Informatics, 276-294.
88. Ding, J., Gao, S., Jenelius, E., Rajmani, M., Huang, H., Long, M., Ben-Akiva, M. and **Pereira, F. C.**. "Routing Policy Choice Set Generation in Stochastic Time-Dependent Networks: Case Studies for Stockholm and Singapore". Transport Research Board (TRB) annual meeting. Washington, D. C. January, 2014.
89. Carrion, C., **Pereira, F. C.**, Ball, R., Zhao, F., Kim, Y., Nawarathne, K., Zheng, N., Zegras, C. and Ben-Akiva, M. "Evaluating Future Mobility Survey: Preliminary Comparison with Traditional Travel Survey". Transport Research Board (TRB) annual meeting. Washington, D. C. January, 2014.
90. **Pereira, F. C.**, Lederman, O. and Ben-Akiva, M. "Approximating Incident Occurrence Time with Change-Point Latent Variable Framework". Transport Research Board (TRB) annual meeting. Washington, D. C. January, 2014.
91. Robinson, S., **Pereira, F. C.** and Ben-Akiva, M. "DynaMIT 2.0: advances in real time traffic simulators", In Proceedings of the 20th Intelligent Transportation Systems World Congress (ITSWorld), Japan, 2013.
92. Cottrill, C., **Pereira, F. C.**, Zhao, F., Dias, I., Lim, H. B., Ben-Akiva, M. and Zegras, C. "The Future Mobility Survey: Experiences in developing a smartphone-based travel survey in Singapore". Transport Research Board (TRB) annual meeting. Washington, D. C. January, 2013.
93. Lopes, J, Bento, J., **Pereira, F. C.** and Ben-Akiva, M. "Dynamic Forecast of Incident Clearance Time Using Adaptive Artificial Neural Networks". Transport Research Board (TRB) annual meeting. Washington, D. C. January, 2013.
94. Alves, A. O. and **Pereira, F. C.** "Making Sense of Location Context". ContextDD 2012 workshop, ACM SIGKDD 2012, August 2012, Beijing.
95. **Pereira, F. C.**, Rodrigues, F. and Ben-Akiva, M. "Internet as Sensor: Case Study with Special Events". Transport Research Board (TRB) annual meeting. Washington, D. C. January, 2012.
96. Rodrigues, F., Alves, A., **Pereira, F. C.**, Jiang, S., Ferreira, J. "Automatic Classification of Points-of-Interest for Land-use Analysis". The Fourth International Conference on Advanced Geographic Information Systems, Applications, and Services (GeoProcessing 2012). Valencia, Spain, February, 2012
97. Alves, A. O., Rodrigues, F. and **Pereira, F. C.**. "Tagging Space from Information Extraction and Popularity of Points of Interest". European Conference on Ambient Intelligence (Aml 2011), Amsterdam, November, 2011.
98. Calabrese, F., **Pereira, F. C.**, Lorenzo, G., Liu, L., "The geography of taste: analyzing cell-phone mobility and social events", in Procs. of Pervasive 2010. Helsinki. May, 2010.
99. **Pereira, F. C.**, Alves, A. O., Oliveira, J. and Biderman, A., "Perspectives on semantics of the place from online resources", in Proc. of the Third IEEE International Conference on Semantic Computing (ICSC, 2009), September 2009
100. Oliveira, H. G., Cardoso, A. and **Pereira, F. C.** , "Tra-la-Lyrics: An approach to generate text based on rhythm", in Proc. of the Fourth joint workshop on Computational Creativity, IJWCC'07, Fourth joint workshop on Computational Creativity, IJWCC'07, London, June 2007
101. Hervás, R., **Pereira, F. C.**, Gervás, P. and Cardoso, A. , "Cross-Domain Analogy in Automated Text Generation", in Proc. of the Third joint workshop on Computational Creativity, Third joint workshop on Computational Creativity, ECAI'06, Trento, Italy, August 2006

102. **Pereira, F. C.**, Mendes, M., Gervás, P. and Cardoso, A. , "Experiments With Assessment of Creative Systems: An Application of Ritchie's Criteria", in Proc. of the Second Computational Creativity Workshop, IJCAI2005, Second Computational Creativity Workshop, IJCAI2005, Edinburgh, Scotland, July 2005
103. Gomes, P., **Pereira, F. C.**, Carreiro, P., Paiva, P., Seco, N., Ferreira, J. and Bento, C. , "Case-Based Adaptation for UML Diagram Reuse", 8th International Conference on Knowledge-Based Intelligent Information & Engineering Systems (KES'04), Wellington, New Zealand, September 2004
104. Gomes, P., Seco, N., **Pereira, F. C.**, Paiva, P., Carreiro, P., Ferreira, J. and Bento, C. , "The Importance of Retrieval in Creative Design Analogies", in Proc. of the International Joint Conference on Artificial Intelligence IJCAI'03 Workshop:, Acapulco, Mexico, August 2003
105. Gomes, P., **Pereira, F. C.**, Paiva, P., Seco, N., Carreiro, P., Ferreira, J. and Bento, C. , "Selection and Reuse of Software Design Patterns Using CBR and WordNet", in Proc. of the Fifteenth International Conference on Software Engineering and Knowledge Engineering (SEKE'03), San Francisco, CA, USA, July 2003
106. **Pereira, F. C.** and Gervás, P. , "Natural Language Generation from Concept Blends", in Proc. of the AISB'03 Symposium on Creativity in Arts and Sciences, AISB'03 Symposium on Creativity in Arts and Sciences, Aberystwyth. UK, April 2003
107. Gomes, P., **Pereira, F. C.**, Paiva, P., Seco, N., Carreiro, P., Ferreira, J. and Bento, C. , "Using CBR for Automation of Software Design Patterns", in Proc. of the European Conference on Case-Based Reasoning (ECCBR'02), Aberdeen, Scotland, UK, September 2002
108. Gomes, P., **Pereira, F. C.**, Ferreira, J., Seco, N., Carreiro, P., Paiva, P. and Bento, C. , "Experiments on Case-Based Retrieval of Software Designs", in Proc. of the European Conference on Case-Based Reasoning (ECCBR'02), Aberdeen, Scotland, UK, September 2002
109. **Pereira, F. C.** and Cardoso, A. , "Conceptual Blending and the Quest for the Holy Creative Process", in Proc. of the 2nd Workshop on Creative Systems: Approaches to Creativity in AI and Cognitive Science, ECAI 2002, Lyon, August 2002
110. Gomes, P., **Pereira, F. C.**, Paiva, P., Seco, N., Carreiro, P., Ferreira, J. and Bento, C. , "Case Retrieval of Software Designs using WordNet", in Proc. of the European Conference on Artificial Intelligence (ECAI'02), Lyon, France, July 2002
111. Gomes, P., **Pereira, F. C.**, Ferreira, J., Bento, C. , "Using Analogical Reasoning to Promote Creativity in Software Reuse", in Proc. of the ICCBR'01 Workshop on Creative Systems, Vancouver, Canada, July 2001
112. Ribeiro, P., **Pereira, F. C.**, Ferrand, M. and Cardoso, A. , "Case-based Melody Generation with MuzaCazUza", in Proc. of the AISB'01 Symposium on AI and Creativity in Arts and Science, AISB'01, University of York, United Kingdom, March 2001.
113. **Pereira, F. C.** and Cardoso, A. , "A Module for Automatic Learning of Concept Maps", in Proc. of the Diagrams 2000, Springer, Edinburgh, Scotland, September 2000
114. **Pereira, F. C.**, Leite, J., Cardoso, A. and Pereira, L. , "Metaphorical Mapping Consistency via Dynamic Logic Programming", in Proc. of the Symposium on Creative & Cultural Aspects and Applications of AI & Cognitive Science, pp. 41-53, AISB'00, York, UK, April 2000.
115. **Pereira, F. C.** "Modelling Divergent Production: a multi domain approach", in Proc. of the European Conference of Artificial Intelligence (ECAI'98), European Conference of Artificial Intelligence (ECAI'98), Brighton, UK, August 1998
116. **Pereira, F. C.**, Grilo, C., Macedo, L. and Cardoso, A. "Composing Music with Case-Based Reasoning", in Proc. of the Second Conference on Computational Models of Creative Cognition, MIND-II, Dublin, Ireland, September 1997

Other publications and press interviews

1. Video interviews for Copenhagen Smart City, commissioned by København Kommune, 2015.
2. Video interviews for Google Statistics data for transportation, commissioned by Google, 2015.
3. Interview for Shanghai The Bund Magazine, about Transportation in the Smart Cities, 2015.

4. Bin Guo, Zhiwen Yu and Francisco C. Pereira. Introduction to "Special Issue on Cross-Community Mining", Pervasive and Ubiquitous Computing Journal, Springer, 2014
5. Interview to National Geographic Magazine (Brasil edition), related to real-time traffic prediction. July 2013
6. Interviews to Zabao and Straits times newspapers, Singapore, related to GYSS Singapore Challenge 2013 prize, January 2013
7. Interview to Straits times newspaper, Singapore, related to Future Mobility Survey project, September 2013
8. Article in SenseableCity Guide 2011, Senseable City Lab, MIT, 2011
9. Articles in Super Interessante and Exame Informatica, related to AIDA project from MIT (with Volkswagen of America), 2010.
10. Niza, S. and Pereira, F.C. , "A modelação de sistemas de transportes e de energia no programa MIT Portugal", Climatização, pp. 94-101, 2010
11. Multiple interviews for Portuguese radio and newspapers related to Citymotion and iTEAM projects and programming contest wins, from 2005 to 2011

Patents and inventions

1. Invention disclosure: M.I.T. Case No. 15556D, "Smartphone-Based Prompted-Recall Travel Survey", by Moshe Ben-Akiva, Christopher P. Zegras and Francisco Pereira.
2. patent - "Travel Survey Systems and Methods", US Patent App. 14/594,611, by Moshe Ben-Akiva, Christopher P. Zegras, Francisco Pereira and Fang Zhao.

3. Honours and Awards

Personal prizes

January 2018	Best simulation application paper award by the TRB simulation subcommittee (SimSub) Improving scalability of generic online calibration for real-time DTA
April 2017	Marie Curie International Incoming Fellowship (IF) PRISM - Probabilistic Predictions for Smart Mobility under Stress Scenarios.
January 2016	Pyke Johnson Award , for TRB 2015 paper ‘Exploratory Analysis of a Smartphone Based Travel Survey in Singapore’. Joint award with F. Zhao, R. Ball and Y. Kim (SMART) and Y. Han, C. Zegras and M. Ben Akiva (MIT)
January 2013	Winner of Singapore Challenge 2013 for white paper “Towards an Adaptive Urban Transportation System”. Joint award with Lynette Cheah (A-Star), Erik Wilhelm (SUTD) and Don MacKenzie, Jeff McAulay and Stephen Zopf (MIT). International competition with prestigious jury (2 Nobel laureates) and highly selective process.
October 2011	Marie Curie International Outgoing Fellowship (IOF) EU FP7 individual grant for European top scholars (total 340k euro, $\leq 15\%$ acc. rate, fifth in Portugal to receive it since 2007, first from computer science).
April 2010	EU Eureka! Excellence seal for iTEAM project integrated Transportation and Energy Activity-based Model - developed in collaboration with Profs. Moshe Ben-Akiva and Chris Zegras, from MIT.
December 2009	IEEE Member Geographic Activities Achievement Award IEEEExtreme programming contest (co-organizer, problem setter and coach in 24 hour IEEE programming marathon.)
March 2009	Postdoctoral research fellowship at MIT SENSEable City Lab/MIT
May 2005	Second prize in PT-Innovation - national IDEA contest Indoor localization based on GSM technology

As advisor

July 2017	Best National thesis in Pattern Recognition (APRP 2017). First prize. Filipe Rodrigues
October 2011	National Award for research in Artificial Intelligence (TLEIA 2011). First prize. Filipe Rodrigues
October 2008	National programming contest marathon (MIUP 2008): First prize (as coach and problem setter)
October 2006	National programming contest tournament (TIUP 2006): First prize (as coach and problem setter)
July 2001	Prof. Henrique Teixeira Bastos Award for the best final BSc project in Informatics Engineering from the Faculty of Sciences and Technology. Ana Alves.

Research grants (Total as proposal author>1 Million Euro):

Period	Name	Description	Role	Funding source	Approx. amount
2016-2016	EQ	Extraordinary Queuing detection in	PI	Danish Road Directorate (DRD)	50k Euro
2013-2016	INFOCROWDS	Social events web information retrieval for crowd mobility management	Co	FCT (Portuguese research foundation)	115k Eur
2010-2014	CROWDS	Understanding urban land use from digital footprints of crowds	Co	FCT	190k Eur
2009-2012	COSMO	Distributed and collaborative route planning	PI	FCT	100k Eur
2009-2011	iTEAM	Integrated activity-based modeling of Transports, Energy and Land Use	PI	FCT/MIT	240k Eur
2008-2010	AIDA	Affective, Intelligent, Driving Agent - navigation system that integrates behaviour modeling, real time data and semantic context of the city.	C	Volkswagen of America (VoA)	N/D
2008-2010	CityMotion	Platform for integrated mobility analysis using heterogeneous data about the city	Co	FCT/MIT	200k Eur
2007-2009	YouTrace	System for generation of road maps through detailed analysis of GPS traces	PI	own seed funding	20k Eur
2007-2008	IntelliSpaces	RFID system for monitoring storage in closed spaces	Co	PT Inovação (Portugal Telecom)	30k Eur
2006-2008	NITEC-ISF	Seed fund for ubiquitous computing research with Ideias Sem Fim, S.A.	PI	AdI (Innovation Agency)	80k Eur
2005-2006	GSM Indoor	Indoor localization system using GSM signature by applying Case Based Reasoning	Co	PT Inov	30k Eur

Legend: PI=Principal Investigator & proposal co-author; Co=Co-PI & proposal co-author; C=Collaborator; N/A=non available/disclosable.

4. Advisory and committees

Advising

PostDoc

Since 2019	Dongwoo Lee, DTU, Copenhagen Focus: Machine Learning, ITS
Since 2018	Bojan Kostic, DTU, Copenhagen Focus: Machine Learning, ITS
2016-2018	Filipe Rodrigues, DTU, Copenhagen Focus: Machine Learning, ITS
2014-2015	Stanislav Borysov, SMART/MIT, Singapore Focus: Machine Learning, ITS Currently Researcher at KTH Stockholm
2013-2015	Aidan O'Sullivan, MIT, Boston & SMART/MIT, Singapore Focus: Real-time dynamic traffic assignment (DTA), pattern recognition, public transport data analysis Currently lecturer at University College London (UCL)
2012-2014	Yang Lu, SMART/MIT, Singapore Focus: Real-time dynamic traffic assignment (DTA), Activity based modeling Currently researcher at Baidu, China
2012-2013	Rudi Ball, SMART/MIT, Singapore Focus: Smartphone based travel surveys Currently researcher at Future Cities Catapult, London
2011-2013	Caitlin Cottrill, SMART/MIT, Singapore Focus: Smartphone based travel surveys Currently lecturer at University of Aberdeen

PhD

Since Jan. 2020	Raymond Low, Singapore University for Technology and Design, Singapore Preliminary Title: Machine Learning and Freight behavior analysis (with Prof. Lynette Cheah)
Since Dec. 2019	Ioanna Arkoudi, Technical University of Denmark, Denmark Title: Automatic Specification in Dynamic Behavior Modeling and Specification through Advanced Statistics and Machine Learning
Since Mar. 2019	Georges Sfeir, Technical University of Munich, Germany Title: Integration of Machine Learning and Discrete Choice Models to Better Predict and Describe Decision Makers' Choices (with Prof. Maya Abu-Zeid)
Since Jan. 2019	Daniele Gammelli, Technical University of Denmark, Denmark Title: Solution methods for predictive optimization
Since Jan. 2019	Sergio Garrido, Technical University of Denmark, Denmark Title: Machine Learning for Transportation Demand
Since Nov. 2018	Valentino Servizi, Technical University of Denmark, Denmark Title: Mining User Behaviour from Smartphone-data
Since Jun. 2018	David Rodas, Technical University of Munich, Germany Title: Planning for equitable bike sharing using machine learning methods (with Prof. Gerbhard Wulfhorst)
Since Dec. 2017	Inon Peled, Technical University of Denmark, Denmark Title: Demand prediction models for autonomous shuttles
Since Mar. 2017	Niklas Petersen, Technical University of Denmark, Denmark Title: Ensemble prediction models for bus arrival prediction
2016-2019	Yafei Han, MIT, USA Title: Neural Embedded Discrete Choice Model (with Profs. Moshe Ben-Akiva, Chris Zengras)
2016-2019	Nassim Motamedidehkordi, Technical University of Munich, Germany Title: Data-driven modeling of lane changing on freeways (with Prof. Fritz Busch)
2015-2019	Ioulia Markou, Technical University of Denmark, Denmark Title: Web-mining for Transport disruption explanation and prediction
2015-2019	Aliasghar Mehdizadeh Dastjerdi, Technical University of Denmark, Denmark Title: ATIS and modal shift: the role and the effectiveness of information provision and perception
2015-2018	Haizheng Zhang, MIT, USA Title: Machine Learning in Online Calibration of DynaMIT

PhD (cont.)

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|-----------|---|
| 2011-2016 | Filipe Rodrigues, University of Coimbra, Portugal
Title: Event mining for mobility prediction
Cum laude: February 2016 |
| 2008-2012 | Joana Abreu, Instituto Superior Técnico, Portugal/MIT, USA
MIT-Portugal Program
Title: Routines and feedback: a study about electricity consumption in households.
Pattern recognition and energy profiling
Cum laude, March 2012 |
| 2007-2012 | Ana Alves, University of Coimbra, Portugal
Title: Semantics of Place: Web mining and Entity Extraction for automated tagging of geographical locations
Cum laude, July 2012 |

International MSc collaborations (typically thesis supervisor)

- | | |
|-----------|---|
| 2018-2019 | Nicola Ortelli, EPFL, Switzerland
Title: Automatic Utility Specification of Discrete Choice Models
with Prof. M. Bierlaire, EPFL |
| 2014-2016 | Haizheng Zhang, MIT, USA
Title: Online Calibration with Offline Data on Singapore Expressways.
with Prof. M. Ben-Akiva, MIT |
| 2014-2015 | Manuel Levi, University of Coimbra, Portugal
Title: Dynamic context sensing from the Web.
with Prof. B. Ribeiro, UC |
| 2013-2015 | Oren Lederman, MIT, USA
Title: Pattern recognition approaches in model-based traffic prediction (tentative title).
with Prof. M. Ben-Akiva, MIT |
| 2013-2014 | Kalan Vishwanath Nawarathne, Nanyang Technological University (NTU), Singapore
Title: Dead reckoning on Smartphones to reduce GPS usage |
| 2013-2014 | Joan Aguilar Fargas, MIT, USA
Title: Adaptive control of dynamic systems using genetic algorithms
with Prof. M. Ben-Akiva, MIT |
| 2012-2013 | Lu Lu, MIT, USA
Title: Leveraging Context Information to Improve Real-time Traffic Prediction Systems.
with Prof. M. Ben-Akiva, MIT |

Since 2015, regularly supervises 2 to 3 Masters students each year in DTU; between 2005 and 2012, regularly supervised from 4 to 8 Masters students each year, in Uni-

versity of Coimbra.

PhD examining committees, as external examiner

Feb 2020	Panchamy Krishnakumari, TU Delft, Netherlands
November 2019	Ulf Aslak, University of Copenhagen, Denmark
March 2019	Bogdan Toader, University of Luxembourg, Luxembourg
October 2015	Antonin Danalet, École Polytechnique de Lausanne (EPFL), Switzerland
December 2012	Jingmin Chen, École Polytechnique de Lausanne (EPFL), Switzerland Title: Modeling Route Choice Behaviors Using Smartphone Data
January 2012	Jorge Alves Lopes, Instituto Superior Técnico, Portugal/MIT, USA Title: Traffic prediction for unplanned events on highways
July 2010	Fernando Garcia Ribeiro, Universidade do Minho, Portugal Title: Escalonamento Autónomo e Sensível ao Contexto para Ecrãs Públicos
June 2009	Raquel Hervás Ballesteros, Universidad Complutense de Madrid, Spain Title: Referring Expressions and Rhetorical Figures for Entity Distinction and Description in Automatically Generated Discourses
April 2008	Federico Peinado Gil, Universidad Complutense de Madrid, Spain Title: A framework for the development of automatic storytelling applications based on reusable ontological components
May 2007	Fernando Penousal Machado, University of Coimbra, Portugal Inteligência Artificial e Arte
May 2005	Nuno Seco, University College Dublin, Ireland Computational models of similarity in lexical ontologies

Event organization committees

June 2020	International Conference on Transport Survey Methods (ISCTSC 2020), Portugal
June 2016	Summer school on Big Data in Transport, Cyprus
September 2015	Mapping the Landscape of Social Media/Big Data for Transportation Systems Analysis (Workshop in Intelligent Transport Systems Conference 2015, IEEE ITSC 2015)
December 2014	Conference on Complex Systems Design and Management (CSD&M'14), Singapore. Member of organizing committee (led by Michel-Alexandre Cardin, NUS)
June 2007	Workshop em Sistemas Móveis e Ubíquos (WSMU'07), Coimbra, Portugal. National event.
December 2006	First Workshop on Location Based Services for Health Care, Pervasive Healthcare Conference, Innsbruck, Austria (with Carlos Bento and Jorge Dias)
July 2004	International Joint Workshop in Computational Creativity (CC'04) (with Pablo Gervás and Simon Colton)

Keynote and invited lecture talks

September 2019	<i>Re-representing behavior models with Machine Learning methods.</i> hEART 2019 Summer School, Budapest
April 2019	<i>Predicting for the Adaptive Transport System.</i> ICDE 2019 Smart Cities workshop, Macau
September 2016	<i>Machine Learning for Transportation.</i> hEART 2016 Summer School, Delft
May 2016	<i>Non-recurrent events in traffic prediction.</i> Danish Operations Research Society symposium (DORS 2016), Copenhagen
April 2016	<i>Non-recurrent events in traffic prediction.</i> Tel-Aviv University, Tel-Aviv
November 2015	<i>Non-recurrent events in traffic prediction.</i> IPAM workshops 2016. University of California at Los Angeles
April 2015	<i>Semantics and the city.</i> University of California at Berkeley. ITS Seminar series
October 2014	<i>Non-recurrent events in traffic prediction.</i> University of Florida at Gainesville
May 2014	<i>Non-recurrent events in traffic prediction.</i> NEC Labs Europe, Heidelberg

Conference committees, since 2006

IJCAI 2020, EPIA 2020, hEART 2020, hEART 2019, EPIA 2015, ITSC 2015, HBI 2014, CSD&M 2014, EPIA 2013, C3GI 2013, ICC3 2013, C3GI 2012, PURBA 2012, PURBA 2011, ISAmI 2011, ICC3-XI, ISAmI 2010, ICC3-X, AITUM 09, inMOTION 2009, DAC 09, CoRTA, IJWCC 09, EvoMusArt 07, Locare 2006, CC06, ECAI'06, EvoMusArt 06

Reviewing

Transportation Science, Transport Research Part C (Journal), TRB 2013, GENP (Journal), IEEE T-ITS (Journal), Transport and Policy (Journal), ITSC, TRB 2012, ETRR (Journal), ALTUM 09, DAC 09, inMOTION 09, CoRTA 08, IJWCC08, LoCA 07, IJWCC'07, EvoMusArt 07, Locare, CSMU 06, IJWCC06, EvoMusArt06, IJCAI05, AAMAS04, LREC04, JCC04, IJWCC03, ICCBR03, EPIA03, EWCBR02, CC02, CC01, EPIA01, EWCBR 2000, EPIA99.

Other committees

Member of Scientific Advisory Board of PTV.

Member of Scientific Advisory Board of DataSpark.

Member of Standing Committee on Transportation Demand Forecasting (ADB40) of the Transport Research Board (TRB), leading section on Big Data for Demand Modeling.

Member of Editorial board of *International Journal of Transportation (IJT)*, Science and engineering research support society (SERSC).

Member of Editorial board of *Engineering Applications of Artificial Intelligence (EAAI)*, Elsevier. (retired)

External Expert Advisory Board of the project *Intelligent Cooperative Sensing for Improved traffic efficiency (ICSI)*, funded by european union FP7-317671 (Concluded).

Guest Editor, Transport Research Part C Special Issue on Social Network Analysis in Future Transportation Systems: Contributions on Observability, Behaviour and Structure.

Member of Editorial Advisory Board for the book *Tools for Mobile Multimedia Programming and Development*, IGI Global, edited by Dian Tjondronegoro (Queensland University of Technology, QUT).

5. Teaching

Subjects

Data Sciences and GIS for Mobility, <i>Masters in Transportation and Logistics</i>	Machine learning tools and algorithms for transportation data, Technical University of Denmark (subject author; main lecturer, 2017)
Model-Based Machine Learning, <i>Masters in Transportation and Logistics</i>	Advanced machine learning tools and algorithms for transportation data, Technical University of Denmark (<i>in preparation</i> ; subject author; main lecturer, 2016)
Innovation Projects for the Smart City, <i>Masters in Transportation and Logistics</i>	Seminar course on ITS project design and implementation, Technical University of Denmark (subject author; main lecturer, 2016)
Transportation Systems Modeling, 1.041, 2nd year undergrad	Several topics on modelling for Civil and Environmental Engineering students With Prof. Carolina Osorio and Prof. Samitha Samaranyake at MIT CEE (adjunct lecturer, 2015)
Multivariate Statistics, 1.074, 3rd year undergrad	Multivariate statistics for Civil and Environmental Engineering students With Prof. Ben-Akiva and Dr. Carlos Lima Azevedo at MIT CEE (subject co-author; adjunct lecturer, 2015, 2016)
ICT for Transportation Systems, 1st year masters	general information and communication technology (ICT) topics, emphasis in intelligent transport systems and data analysis, subject of the MIT-Portugal complex transport infrastructure systems (CTIS) Program. (adjunct lecturer 2007-08; main lecturer, 2009, 2011)
Interface technologies, 1st year masters	interaction design, user experience design, processing programming, sensors, arduino platform (main lecturer, 2010)
Ambient Intelligence, 1st year masters	subject focus was programming and machine learning, context awareness, sensors, urban computing, internet of things, processing, visualization (subject author; main lecturer, 2010)
Ubiquitous Computing, 1st year masters	context awareness, sensors, localization, ambient intelligence (subject co-author; main lecturer, 2006-2008; 2010)
Advanced Programming Lab, 3rd year undergrad	string search, dynamic programming, graphs, flow networks, computational geometry, programming contest preparation (subject author; main lecturer, 2006-2008; 2010)
Introduction to Programming, 1st year undergrad	python introductory subject (lab lecturer, 2008-2009)
Compilers, 3rd year undergrad	formal languages, parsing, lexers, compiler design and implementation (lab lecturer, 2004-2007; main lecturer, 2007-2008)

Subjects (cont.)

Advanced Topics in Ubiquitous Computing, <i>PhD course</i>	mobility analysis, indoor and outdoor localization, small ubi-comp for the urban environment, seminar (subject co-author; adjunct lecturer, 2006-2008; 2010)
Art, Music, Creativity and Artificial Intelligence, <i>PhD course</i>	generative art, algorithmic music, conceptual blending, cognitive theories on creativity (subject co-author; adjunct lecturer, 2006-2007)
Programming and Algorithms III, <i>2nd year undergrad</i>	algorithmic complexity, data structures, recursion, search, sorting, graphs (main lecturer, 2005-2006; lab lecturer, 2010)
Intelligent Communication Engineering, <i>1st year masters</i>	logic programming, natural language processing, prolog (lab lecturer, 2000-2001; main lecturer 2001-2002)
Knowledge Engineering, <i>3rd year undergrad</i>	expert systems development, prolog (lab lecturer, 2000-2001)
Programming and Algorithms I, <i>1st year undergrad</i>	programming introductory subject, java (teaching assistant, 1998-1999, lab lecturer, 2004-2005)
Programming and Algorithms II, <i>2nd year undergrad</i>	object oriented programming, java (teaching assistant, 1998-1999, lab lecturer, 2001-2002)

Legend:

Subject author=designed and implemented the subject from scratch; Main lecturer=subject leader (supported by a team of adjunct and lab lecturers), responsible for the syllabus, lecturing scheme, materials and evaluation process; Adjunct lecturer=responsible for at least one module of the subject, supports the main lecturer with materials and evaluation process; lab lecturer=supports lab classes and evaluation process.

Other pedagogical activities

Programming contests

In 2005, Francisco created the project "esperancas" with the goal of training a carefully selected number of undergraduate students for competing in programming contests. These contests involve teams of 3 students tasked with programming the solution to a set of problems from a range of topics (e.g. maths, algorithmics, geometry, string manipulation) in a limited time. In his role as a coach, he organized training sessions focused on problem solving for these topics and team interaction.

Before this project, the best result from UC students at national level had been 7th place, since then, they won national competitions for three times (2006, 2008 and 2012).

Cooperation in East Timor

In 2002, Francisco collaborated with the University of Dili (East Timor, Southeast Asia) while the territory was under administration of the United Nations in the aftermath of

the independence conflicts. He was part of the team that installed the Informatics Engineering course in that university, and taught introductory subjects about programming and internet.

6. Other skills

Languages

Portuguese: Mothertongue
English: Fluent
Spanish: Fluent
Danish: Intermediate
French: Basic Knowledge

Leisure

7th level, classical guitar conservatory.

Intermediate skier and scuba diver (PADI).

Passionate father, hummus cooker, cod dishes epicurist (Portuguese style) and nature lover.