



# Lucas Pereira

## **POST-DOCTORAL RESEARCHER**

Madeira Interactive Technologies Institute

## **CO-FOUNDER AND MACHINE LEARNING LEAD**

BrightCuriosity Lda (prisma.com)

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<http://orcid.org/0000-0002-9110-8775>

## **GOOGLE SCHOLAR**

<https://goo.gl/M7Guxq>

## EDUCATION

### **PHD IN COMPUTER SCIENCE - 2016**

University of Madeira / Madeira-ITI, Portugal

Thesis: Hardware and Software Platforms for Deploying and Evaluation Non-Intrusive Load Monitoring Systems

Advisor: Nuno Jardim Nunes (University of Madeira / Madeira-ITI), Mario Bergés González (Carnegie Mellon University)

### **MSC IN COMPUTER SCIENCE - 2011**

University of Madeira / Madeira-ITI, Portugal

Thesis: Low Cost Non-Intrusive Home Energy Monitoring

Advisor: Nuno Jardim Nunes (University of Madeira / Madeira-ITI)

### **ENGINEERING DEGREE IN INFORMATICS - 2007**

University of Madeira, Portugal

Thesis: Fox - Visual Business Intelligence for the Web 2.0

Advisors: Pedro Campos (University of Madeira), Duarte Freitas (Anturio Corporation)

## PROFESSIONAL EXPERIENCE

### **POST-DOCTORAL RESEARCHER, JANUARY 2017 - ONGOING**

Madeira Interactive Technologies Institute

### **CO-FOUNDER AND DATA SCIENCE LEAD, JUNE 2015 - ONGOING**

BrightCuriosity Lda. (prisma)

### **RESEARCH FELLOW, AUGUST 2013 - JANUARY 2014, OCTOBER 2015 - ONGOING**

Intelligent Infrastructure Research Lab (INFERLab)  
Carnegie Mellon University

### **INFORMATICS ENGINEER, DECEMBER 2007 - JANUARY 2010**

Information Systems and Communications Department  
Câmara de Lobos City Hall

## HONOURS AND AWARDS

### **INDIVIDUAL DOCTORAL GRANT, 2011 - 2015**

Portuguese Foundation for Science and Technology

### **BEST ORAL PRESENTATION, 2018**

International NILM Workshop 2018

## RESEARCH GRANTS

### **SMART ISLAND ENERGY SYSTEMS (SMILE), 2017 - 2021**

Horizon 2020, LCE 2

<http://www.h2020smile.eu>

### **SME INSTRUMENT - PHASE 1, 2015 - 2016**

Horizon 2020, SME Instrument

### **SMART-SOLAR, 2014-2015**

MADFDR-01-0190-FEDER-000015

## TEACHING EXPERIENCE

### **PROGRAMMING PARADIGMS - UNIVERSITY OF MADEIRA, FALL 2017**

Introductory programming course to the different engineering and mathematic degrees at the the University of Madeira. Course taught in English and Portuguese.

## MASTER STUDENTS

### **DINO VASCONCELOS, 2017/2018 - ONGOING**

*Thesis: Smart-Charging of Electric Vehicles - the case of Madeira Island*, In co-supervision with Dionisio Barros (University of Madeira)

### **DONOVAN COSTA, 2017/2018 - ONGOING**

*Thesis: Collaborative Semi-Automatic Labelling for Non-Intrusive Load Monitoring Datasets*, (University of Madeira)

### **RODOLFO GONÇALVES, 2013/2014 - 2014/2015**

*Thesis: OpenDataHub: An Open Dataset Management System*, In co-supervision with Nuno Jardim Nunes and Filipe Quintal (University of Madeira)

## RESEARCH ASSISTANTS

### **LUÍSA BARROS, AUGUST 2017 - ONGOING**

*Project: Smart Energy Island Systems (SMILE)*

### **DANIEL PESTANA, AUGUST 2017 - ONGOING**

*Project: Smart Energy Island Systems (SMILE)*

## REVIEWING AND EDITING

### **REVIEWER IN JOURNALS**

*International Journal of Electrical Power and Energy Systems - Elsevier, 2018*

*Energy and Buildings - Elsevier, 2017*

*Transactions on Intelligent Interactive Systems - ACM, 2016*

*Energies - MDPI Open Access Journal, 2013, 2014, 2015*

*Sensors - MDPI Open Access Journal, 2012*

### **REVIEWER IN CONFERENCES**

*IEEE International Conference on Smart Computing - SmartComp 2018*

*IFIP Conference on Sustainable Internet and ICT for Sustainability - SustainIT 2017*

*IEEE PES Power Africa Conference - PowerAfrica 2017, 2018*

*ACM Conference on Computer-Supported Cooperative Work and Social Computing - CSCW 2017*

*ACM Conference on Intelligent User Interfaces - IUI 2015, 2017, 2018*

*ACM International Conference on Embedded Systems for Energy-Efficient Buildings - BuildSys 2014*

*ACM CHI Conference on Human Factors in Computing Systems - CHI 2014, 2015*

*ACM SIGCHI Conference on Mobile Human-Computer Interaction - Mobile HCI 2012, 2013*

*ACM SIGCHI Symposium on Engineering Interactive Computing Systems - EICS 2014, 2015*

*ACM SIGCHI Symposium on User Interface Software and Technology - UIST 2014*

*International Conference on ICT for Sustainability - ICT4S 2014*

*ACM Nordic Conference on Human-Computer Interaction - NordiCHI 2014*

### **REVIEWER IN WORKSHOPS**

*International Workshop on Non-Intrusive Load Monitoring - NILM Workshop 2016*

*ACM Workshop On Embedded Systems For Energy-Efficient Buildings - BuildSys 2012, 2013*

### **EDITOR IN CONFERENCE PROCEEDINGS**

*The Fifth IFIP Conference on Sustainable Internet and ICT for Sustainability - 2017*

### **EDITOR IN JOURNALS**

*Guest Editor: Springer Energy, Ecology and Environment - Special Issue on Energy and Sustainability in Small Developing Economies*

*Guest Editor: Springer Computing - Special Issue on Highlights of ES2DE and IWOB 2017 - Extended Versions of Selected Best Papers*

## CONFERENCE ORGANIZATION

### **VICE-PROGRAM CHAIR:**

*The Fifth IFIP Conference on Sustainable Internet and ICT for Sustainability - SustainIT 2017*

### **LOCAL ORGANIZING COMMITTEE:**

*International Conference on Engineering Applications - ICEA 2017*

*Advances in Computer Entertainment Technology - ACE 2014*

#### TECHNICAL PROGRAM COMMITTEE:

IEEE International Conference on Artificial Intelligence and Virtual Reality - AIVR 2018

ACM Conference on Intelligent User Interfaces - IUI 2017, 2018

IEEE International Conference on Smart Computing - SmartComp 2018

International Workshop on Non-Intrusive Load Monitoring - NILM Workshop 2016

## PUBLICATIONS

#### JOURNALS

1. **Pereira, L.**, Nunes, N. (2018) "Performance Evaluation in Non-Intrusive Load Monitoring: datasets, metrics and tools - a review", WIREs Data Mining and Knowledge Discovery, John Wiley & Sons, (accepted for publication)
2. Scott, M., **Pereira, L.**, Oakley, I. (2014) "Show Me or Tell Me: Designing Avatars for Feedback", *Interacting with Computers 2014*, doi: 10.1093/iwci/iwu008
3. Barreto, M., Szóstek, A., Karapanos, E., Nunes, N. J., **Pereira, L.**, Quintal, F. (2014) "Understanding Families' Motivations for Sustainable Behaviors", *Computers in Human Behavior 2014*, doi:10.1016/j.chb.2014.07.042

#### CONFERENCES

4. **Pereira, L.**, Gonçalves, R., Quintal, F., Nunes, N. J. (2018) "Data Storage and Maintenance Challenges: The Case of Advanced Metering Infrastructure Systems", in *Proceedings of the International Conference of ICT for Sustainability 2018, ICT4S '18*, [full paper]
5. **Pereira, L.**, Ribeiro, M., Nunes, N. J. (2017) "Engineering and Deploying a Hardware and Software Platform to Collect and Label Non-Intrusive Load Monitoring Datasets", in *Proceedings of the Fifth IFIP International Conference on Sustainable Internet and ICT for Sustainability, SustainIT '17*, [full paper]
6. **Pereira, L.** (2017) "Developing and Evaluating a Probabilistic Event Detector for Non-Intrusive Load Monitoring", in *Proceedings of the Fifth IFIP International Conference on Sustainable Internet and ICT for Sustainability, SustainIT '17*, [full paper]
7. **Pereira, L.**, and Nunes, N. J. (2017) "A Comparison of Performance Metrics for Event Classification in Non-Intrusive Load Monitoring", In *Proceedings of the IEEE International Conference on Smart Grid Communications, SmartGridComm '17*, [full paper]
8. Quintal, F., **Pereira, L.**, Nunes, N. J. and Nisi, V. (2015) "What-a-Watt: Exploring Electricity Production Literacy Through a Long Term Eco-Feedback Study", In *Proceedings of the Fourth IFIP Conference on Sustainable Internet and ICT for Sustainability, SustainIT '15*, [short paper]
9. **Pereira, L.**, Quintal, F., Gonçalves, R. and Nunes, N. J. (2014) "SustData: A Public Dataset for ICT4S Electric Energy Research," In *Proceedings of the International Conference of ICT for Sustainability 2014, ICT4S '14*
10. Quintal, F., **Pereira, L.**, Nunes, N. J., Nisi, V. and Barreto, M. (2013) "WATTSBurning: Design and Evaluation of an Innovative Eco-feedback System" In *Proceedings of the IFIP TC13 Conference on Human-Computer Interaction, INTERACT '13*
11. Quintal, F., Barreto, M., Nunes, N. J., Nisi, V. and **Pereira, L.** (2013) "WattsBurning on my Mailbox: A Tangible Art Inspired Eco-feedback Visualisation for Sharing Energy Consumption" In *Proceedings of the IFIP TC13 Conference on Human-Computer Interaction, INTERACT '13* [short paper]
12. **Pereira, L.**, Quintal, F., Barreto, M. and Nunes, N. J. (2013) "Understanding the Limitations of Eco-feedback: A One Year Long-term study" In *Proceedings of the ACM / IEEE Conference on Human Factors in Computing & Informatics, SouthCHI '13*
13. **Pereira, L.**, Quintal, F., Nunes, N. J. and Berges, M. (2012) "The Design of a Hardware-software Platform for Long-term Energy Eco-feedback Research" In *Proceedings of the ACM SIGCHI Symposium on Engineering Interactive Computing Systems, EICS '12*

14. **Pereira, L.** and Nunes, N.J. (2012) “Low Cost Framework for Non-Intrusive Energy Monitoring and Research” In *Proceedings of the International Conference on Smart Grids and Green IT Systems, SmartGreens '12* [short paper]
15. Nunes, N.J., **Pereira, L.**, Quintal, F. and Berges, M. (2011) “Deploying and Evaluating the Effectiveness of Energy Eco-feedback Through a Low Cost NILM Solution” In *Proceedings of the International Conference on Persuasive Technology, Persuasive '11*
16. Campos, P., Sousa, F., **Pereira, L.**, Perestrelo, C. and Freitas, D. (2007) “Cross-Media User Interfaces for Controlling the Enterprise - The EAGLE Integrated System” In *Proceedings of the International Conference on Enterprise Information Systems, ICEIS '07* [short paper]

#### WORKSHOPS

17. **Pereira, L.**, Nunes, J.N. (2018) “Comparison of Performance Metrics for Event Detection Algorithms in NILM”, In *Proceedings of the 4th International NILM Workshop* [paper]
18. Nunes, N.J., **Pereira, L.** and Nisi, V. (2015) “Towards using Low-Cost Opportunistic Energy Sensing for Promoting Energy Conservation” In *Proceedings of the Fostering Smart Energy Applications Workshop, FSEA '15*, [position paper]

#### EXTENDED ABSTRACTS, POSTER AND DEMO ABSTRACTS

19. Barros, L., **Pereira, L.**, and Pyakurel, P. (2018) “On the Challenges of Charging Electric Vehicles in Domestic Environments”, *Proceedings of the 9th International Conference on Future Energy Systems, e-Energy '18* [poster]
20. **Pereira, L.**, Chisik, Y. (2017) “A Mouse over a Hotspot Survey: An exploration of perceptions of electricity consumption and patterns of indecision”, in *Proceedings of the Fifth IFIP International Conference on Sustainable Internet and ICT for Sustainability, SustainIT '17*, [work-in-progress]
21. **Pereira, L.** (2017) “EMD-DF: A Data Model and File Format for Energy Disaggregation Datasets”, In *Proceedings of the ACM International Conference on Systems for Energy-Efficient Built Environments, BuildSys '17*, [poster]
22. Ribeiro, M., **Pereira, L.**, Quintal, F. and Nunes, N.J. (2016) “SustDataED: A Public Dataset for Electric Energy Disaggregation Research”, In *Proceedings of ICT for Sustainability 2016, ICT4S '16*, [poster]
23. **Pereira, L.** and Nunes, N.J. (2015) “Towards Systematic Performance Evaluation of Non-Intrusive Load Monitoring Algorithms and Systems” In *Proceedings of the Fourth IFIP Conference on Sustainable Internet and ICT for Sustainability, SustainIT '15*, [doctoral consortium]
24. **Pereira, L.** and Nunes, N.J. (2015) “Semi-automatic labeling for Non-Intrusive Load Monitoring Datasets” In *Proceedings of the Fourth IFIP Conference on Sustainable Internet and ICT for Sustainability, SustainIT '15*, [poster]
25. Quintal, F., **Pereira, L.**, Jorge, C. and Nunes, N.J. (2015) “EnerSpectrum: Exposing the source of energy through plug-level eco-feedback” In *Proceedings of the Fourth IFIP Conference on Sustainable Internet and ICT for Sustainability, SustainIT '15*, [poster]
26. **Pereira, L.**, Nunes, N. and Bergés, M. (2014) “SURF and SURF-PI: A File Format and API for Non-Intrusive Load Monitoring Public Datasets” In *Proceedings of the 5th International Conference on Future Energy Systems, e-Energy '14* [poster]
27. Quintal, F., **Pereira, L.**, Nunes, N. and Nivi, V. (2014) “What a watt: Where does my electricity come from?”, In *Adjunct Proceedings of the International Working Conference on Advanced Visual Interfaces, AVI '14* [demo]
28. **Pereira, L.** (2013) “Towards Automating the Performance Evaluation of Non-Intrusive Load Monitoring Systems” In *Proceedings of the International Conference on ICT for Sustainability, ICT4S '13*, [doctoral consortium]

29. Quintal, F., Nisi, V., Nunes, N.J., Barreto, M. and **Pereira, L.** (2012) "HomeTree - An Art Inspired Mobile Eco-feedback Visualization" In *Proceedings of the International Conference on Advances In Computer Entertainment Technology*, ACE '12 [demo]
30. Gouveia, L., **Pereira, L.**, Scott, M. and Oakley, I. (2012) "Eco-Avatars: Visualizing Disaggregate Home Energy Usage" In *ACM Conference of Designing Interactive Systems*, DIS '12 [demo]
31. Quintal, F., **Pereira, L.** and Nunes, N.J. (2012) "A Long-term Study of Energy Eco-feedback Using Non-Intrusive Load Monitoring" In *Proceedings of the International Conference on Persuasive Technology*, Persuasive '12 [poster]

## AFFILIATIONS

### MEMBERSHIPS

Ordem dos Engenheiros de Portugal (Portuguese Engineers Association)	[2011 - present]
IEEE Computer Society	[2011 - present]
IEEE Power & Energy Society	[2012 - present]
IEEE Computational Intelligence Society	[2017 - present]
ACM	[2017 - present]