



# LUCAS PEREIRA

## RESEARCH FELLOW

ITI, LARSyS, Instituto Superior Técnico

## CO-FOUNDER AND DATA SCIENCE LEAD

BrightCuriosity Lda (prisma.com)

## CITIZENSHIP

Portugal

## OFFICE

Polo Científico e Tecnológico da Madeira,  
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## CIENCIA ID

421F-7B0E-8647

## ORCID

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

## GOOGLE SCHOLAR

<https://goo.gl/M7Guxq>

## EDUCATION

### PHD IN COMPUTER SCIENCE - 2016

University of Madeira / M-ITI, Portugal

### MSC IN COMPUTER SCIENCE - 2011

University of Madeira / M-ITI, Portugal

### ENGINEERING DEGREE IN INFORMATICS - 2007

University of Madeira, Portugal

## PROFESSIONAL EXPERIENCE

### ASSISTANT RESEARCHER, APRIL 2019 - ONGOING

ITI, LARSyS, Instituto Superior Técnico, University of Lisbon

### VISITING ASSISTANT PROFESSOR, OCTOBER 2017 - JULY 2019

University of Madeira

### POST-DOCTORAL RESEARCHER, JANUARY 2017 - MARCH 2019

Madeira Interactive Technologies Institute (M-ITI)

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

BrightCuriosity Lda. (prisma)

### INFORMATICS ENGINEER, DECEMBER 2007 - JANUARY 2010

Information Systems and Communications Department  
Câmara de Lobos City Hall

## LANGUAGES

PORTUGUESE (C2), ENGLISH (C2), SPANISH (B2), FRENCH (A1)

## HONOURS AND AWARDS

### SCIENTIFIC EMPLOYMENT STIMULUS GRANT, 2019 (TOP 12%)

Portuguese Foundation for Science and Technology

### BEST ORAL PRESENTATION, 2018

International NILM Workshop 2018

### INDIVIDUAL DOCTORAL GRANT, 2011 - 2015

Portuguese Foundation for Science and Technology

## RESEARCH GRANTS

### EXPLORING THE HUMAN-WATER-ENERGY NEXUS IN INDUSTRIAL KITCHENS (NEXIK), 2022 - 2023

FCT, EXPLICCI-COM/1234/2021

<https://nexik.tecnico.ulisboa.pt>

### FUTURE INDUSTRIAL KITCHEN (FIK), 2018 - 2019

Madeira 14-20 / FEDER, MI420-01-0247-FEDER-000018

<https://futurekitchen.m-iti.org>

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

Horizon 2020, GA 731249

<https://www.h2020smile.eu>

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

Horizon 2020, SME Instrument

## TEACHING EXPERIENCE

### **COMMUNICATION AND MULTIMEDIA - UNIVERSITY OF MADEIRA, SPRING 2019**

*Introduction to multimedia tools, content creation and management. Web accessibility and data privacy protection. Course delivered in Portuguese.*

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

*Introductory programming course to the different engineering and mathematics majors at the the University of Madeira. Course delivered in English and Portuguese.*

## PHD STUDENTS

### **JOÃO GÓIS (TÉCNICO LISBOA, UNIVERSITY OF LISBON), 2021 - ONGOING**

*Thesis: On the Relationship Between Similarity Measures and Complexity in Energy Disaggregation (Funded by FCT)*

### **ANTHONY FAUSTINE (TÉCNICO LISBOA, UNIVERSITY OF LISBON), 2021 - ONGOING**

*Thesis: Towards Robust Machine Learning Algorithms for Future Energy Systems*

### **EDUARDO GOMES (TÉCNICO LISBOA, UNIVERSITY OF LISBON), 2021 - ONGOING**

*Thesis: MARLEC: Multi-Agent Reinforcement Learning Applications in Energy Communities. In co-supervision with Hugo Morais (Técnico Lisboa) (Funded by FCT)*

## ONGOING MASTER STUDENTS

### **ANA OLIVEIRA (ELECTRICAL AND COMPUTER ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2022**

*Thesis: Water-Energy-Food Nexus in Industrial Kitchens: Energy Efficiency and Management. In co-supervision with Hugo Morais (Técnico Lisboa, U. Lisbon)*

### **RAFAEL CANDEIAS (COMPUTER SCIENCE AND ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2022**

*Thesis: Semi-Supervised Learning Applied to Soil Nutrient Estimation Using Earth Observation Data.*

### **FÁBIO BASSOI (COMPUTER SCIENCE AND ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2022**

*Thesis: Web-based application to create large-scale datasets through crowd-sourcing and data-driven models of EV charging and appliance electricity consumption.*

### **GONÇALO DE MORAIS (ELECTRICAL AND COMPUTER ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2022**

*Thesis: Machine Learning Applications in Industrial Kitchens: Monitoring and Disaggregation. In co-supervision with Hugo Morais (Técnico Lisboa, U. Lisbon)*

## GRADUATED MASTER STUDENTS

### **RICARDO MARTINS (DATA SCIENCE AND ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2022**

*Thesis: Machine Learning Applications in Industrial Kitchens: Data Acquisition and Data-Driven Water-Energy-Food Nexus Modelling. In co-supervision with Hugo Morais (Técnico Lisboa, U. Lisbon)*

### **NUNO VELOSA (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2020/2021 - 2021/2022**

*Thesis: Exploring the potential of social agents and distributed ledger technologies for load balancing in community energy systems. In co-supervision with Filipe Quintal (University of Madeira) | Now at INESC-ID*

### **MANUEL PEREIRA (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2020/2021 - 2021/2022**

*Thesis: Exploring the potential of machine-learning and earth observations data for climate change mitigation. In co-supervision with Filipe Quintal (University of Madeira) | Now at INESC-ID*

### **DIOGO NOBREGA (ELECTRICAL AND COMPUTER ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2022**

*Thesis: Battery Energy Storage System to Provide Grid Services. In co-supervision with Hugo Morais (Técnico Lisboa, U. Lisbon)*

### **JORGE AMANTEGUI (ENERGY ENGINEERING AND MANAGEMENT, TÉCNICO LISBOA, U. LISBON), 2021 - 2022**

*Thesis: On the Potential of RES and Storage Devices in the Context of Restaurant Kitchens. In co-supervision with Hugo Morais (Técnico Lisboa, U. Lisbon)*

### **ARUN NAGARAJ (ENERGY ENGINEERING AND MANAGEMENT, TÉCNICO LISBOA, U. LISBON), 2020/2021**

*Thesis: Participation of prosumers in peer-to-peer negotiation in Energy Communities. In co-supervision with Hugo Morais (Técnico Lisboa, U. Lisbon) | Now at Microsoft Portugal*

**MIKOLAJ KRUTNIK (ENERGY ENGINEERING AND MANAGEMENT, TÉCNICO LISBOA, U. LISBON), 2019/2020**

*Thesis: Energy Services for the Food Industry.* In co-supervision with Nuno Nunes (University of Lisbon) and Van Malcolm Yadack (Koena Tech) | Now at McKinsey & Company

**DINO VASCONCELOS (ELECTRICAL ENGINEERING, UNIVERSITY OF MADEIRA), 2017/2018 - 2019/2020**

*Thesis: Electric Vehicle Smart Charging.* In co-supervision with Dionisio Barros (University of Madeira) | Now at Tech4Home

**FAYAZ AHMED (ENERGY ENGINEERING AND MANAGEMENT, TÉCNICO LISBOA, U. LISBON), 2018/2019**

*Thesis: Assessing the Value Proposition of Disaggregated Electricity Consumption Data through Real-World Deployments.* In co-supervision with Nuno Jardim Nunes (University of Lisbon) | now at CleanWatts

**RODOLFO GONÇALVES (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2013/2014 - 2014/2015**

*Thesis: OpenDataHub: An Open Dataset Management System.* In co-supervision with Nuno Nunes and Filipe Quintal (University of Madeira) | now at blip.pt

## PHD THESES EXAMINER

**FRANCESCA MARCELLO (ELECTRONIC AND COMPUTER ENGINEERING, UNIVERSITY OF CAGLIARI, ITALY) - 2023**

*Thesis: Sensors and Wearable-based Activity Recognition and Behaviour Analysis for Users' Quality of Life Improvement*

**FÁBIO MENDONÇA (ELECTRICAL AND COMPUTER ENGINEERING, TÉCNICO LISBOA, U. LISBON) - 2021**

*Thesis: Signal Processing Approaches for Sleep Quality Analysis in Suspected Sleep Disorder Patients*

**SANDY ABREU (ELECTRICAL AND COMPUTER ENGINEERING, TÉCNICO LISBOA, U. LISBON) - 2021**

*Thesis: Improving Machine Learning Prediction and Forecasting Models Used in Photovoltaic Monitoring Systems*

## MSC THESES EXAMINER

**FRANCISCO FIALHO (COMPUTER SCIENCE AND ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2022**

*Thesis: PowerShare - AI Energy Sensor Interface for Google Home/Assistant*

**GUILLERMO LOPEZ (ELECTRICAL AND COMPUTER ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2022**

*Thesis: Management of Autonomous Electric Vehicles in Parking Lots*

**DUARTE SILVA (ELECTRICAL AND COMPUTER ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2021**

*Thesis: Sistema Hierárquico de Gestão de Energia em Parques de Estacionamento (Hierarchical Energy Management System in Car Parks)*

**DUARTE PINTO (COMPUTER SCIENCE AND ENGINEERING, ISCTE, IUL), 2021**

*Thesis: User Emotional Interaction Processor: A tool to support the development of GUIs through physiological user monitoring*

**JOAQUIM PEREZ (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2021**

*Thesis: Development and Analysis of an Open-source Platform to Simulate Electric Vehicle Charging Needs*

**ANDRÉ MOURA (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2021**

*Thesis: User Chat Clustering Using Deep Learning Representations and Unsupervised Methods for Dialog System Applications*

**ANDRESSA BADE (ENERGY ENGINEERING AND MANAGEMENT, TÉCNICO LISBOA, U. LISBON), 2020**

*Thesis: Small Flexibility-based Frequency Containment Reserves - Opportunities in the European Union and Case Study*

**DIOGO CRUZ (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2020**

*Thesis: User Interfaces and Methods for Visual Search in Images*

## ONGOING BACHELOR STUDENTS

**TONI GARCÊS (UNIVERSITY OF MADEIRA), 2023**

*Project: Visualising Electricity Consumption in Industrial Kitchens.*

**TOM MENDONÇA (UNIVERSITY OF MADEIRA), 2023**

*Project: Frontend application for the TerraSenseTK Machine-Learning Toolkit.*

**FILIFE LOPES (UNIVERSITY OF MADEIRA), 2023**

*Project: Frontend application for the PROCESIM Energy Communities Simulator.*

**PEDRO JAQUES (UNIVERSITY OF MADEIRA), 2023**

*Project: Empirical exploration of performance metrics for power and energy estimation using NILM.*

## GRADUATED BACHELOR STUDENTS

**JOÃO PEREIRA (UNIVERSITY OF MADEIRA), 2019/2020**

*Project: Perceptions of sustainable development web-platform.*

**MANUEL PEREIRA (UNIVERSITY OF MADEIRA), 2018/2019**

*Project: dsCleaner: A Python Library to Clean, Preprocess and Convert Non-Intrusive Load Monitoring Datasets.*

**NUNO VELOSA (UNIVERSITY OF MADEIRA), 2018/2019**

*Project: Multimedia File Format for Data Analytics in Smart Energy Grids.*

**MICHAEL CAVALEIRO (UNIVERSITY OF MADEIRA), 2018/2019**

*Project: Map My Drive web-platform*

## VISITING STUDENTS

**MANOLO MANCA (UNIVERSITY OF CAGLIARI, ITALY), 2022**

*Research Topic: End-to-end energy disaggregation with combined single- and multi-label approaches*

## REVIEWING

### REVIEWER IN JOURNALS

*ACM Transactions on Intelligent Interactive Systems: since 2016*

*Elsevier Sustainable Energy, Grids and Networks, since 2023*

*Elsevier Electric Power Systems Research: since 2021*

*Elsevier Advanced Engineering Informatics: since 2019*

*Elsevier Applied Energy: since 2019*

*Elsevier Building Engineering: Since 2021*

*Elsevier Energy and Buildings: since 2017*

*Elsevier International Journal of Electrical Power and Energy Systems: since 2018*

*Elsevier Energy and AI: since 2020*

*Elsevier Sustainable Cities and Society: since 2020*

*IEEE Transactions on Instrumentation & Measurement: since 2021*

*IEEE Access: since 2019*

*IEEE Transactions on Industrial Informatics: since 2019*

*IEEE Transactions on Smart Grid: since 2020*

*IEEE Transactions on Green Communications and Networking: since 2022*

*IEEE Transactions on Consumer Electronics: since 2022*

*IEEE Journal of Modern Power Systems and Clean Energy: since 2020*

*MDPI Buildings: since 2015*

*MDPI Energies: since 2013*

*MDPI Sensors: since 2012*

*MDPI Sustainability / Technologies / Urban Science / Smart Cities / Future Internet: since 2018*

*Nature Scientific Data: since 2020*

*Nature Scientific Reports: since 2022*

*Wiley International Journal of Energy Research: since 2020*

### REVIEWER IN CONFERENCES

*Annual Conference of the IEEE Industrial Electronics Society - IECon 2021*

*International ACM Conference on Automotive User Interfaces and Interactive Vehicular Applications - AutoUI 2021*

*ACM International Conference on Information Technology for Social Good - GoodIT 2021, 2022*

*ACM Conference on Designing Interactive Systems - DIS 2020*

*IEEE International Conference on Artificial Intelligence and Virtual Reality - AIVR 2018 - 2021*

*IEEE International Conference on Smart Computing - SmartComp 2018 - 2020*

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

*IEEE PES Power Africa Conference - PowerAfrica 2017 - 2019*

*ACM Conference on Computer-Supported Cooperative Work and Social Computing - CSCW 2017 - 2019*

ACM Conference on Intelligent User Interfaces - IUI 2015 - 2023  
ACM International Conference on Embedded Systems for Energy-Efficient Buildings - BuildSys 2014  
ACM CHI Conference on Human Factors in Computing Systems - CHI 2014, 2015, 2023  
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, 2020, 2022  
ACM Workshop On Embedded Systems For Energy-Efficient Buildings - BuildSys 2012, 2013

## EDITING

#### EDITOR IN CONFERENCE PROCEEDINGS

6th International Workshop on Non-Intrusive Load Monitoring - 2022  
The Fifth IFIP Conference on Sustainable Internet and ICT for Sustainability - 2017

#### EDITOR IN JOURNALS

Guest Editor: MDPI Sensors - Special Issue on Practical Nonintrusive Load Monitoring Approaches with Meaningful Performance Evaluation  
Guest Editor: MDPI Energies - Special Issue on Energy Data Analytics for Smart Meter Data  
Guest Editor: Wiley Greenhouse Gases: Science and Technology - Special Issue on ICEA-Energy and Sustainability 2019  
Guest Editor: Springer Computing - Special Issue on Highlights of ES2DE and IWOB 2017 - Extended Versions of Selected Best Papers

## CONFERENCE ORGANIZATION

#### CO-GENERAL CHAIR:

Advances in Signal Processing and Machine Learning for Non-Intrusive Load Monitoring - IEEE ICASSP 2023  
The 6th International Workshop on Non-Intrusive Load Monitoring - NILM 2022

#### VICE-PROGRAM CHAIR:

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

#### CO-CHAIR WORK IN PROGRESS:

International Conference on Information Technology for Social Good - GoodIT 2023

#### LOCAL ORGANIZING COMMITTEE:

Advances in Computer Entertainment Technology - ACE 2014  
IEEE Energy and Sustainability in Small Developing Economies - ES2DE 2017, 2018

#### TECHNICAL PROGRAM COMMITTEE:

ACM International Conference on Information Technology for Social Good - GoodIT since 2021  
ACM Conference on Designing Interactive Systems - DIS 2020  
IEEE International Conference on Artificial Intelligence and Virtual Reality - AIVR 2018 - 2021  
ACM Conference on Intelligent User Interfaces - IUI 2017 - 2023  
IEEE International Conference on Smart Computing - SmartComp 2018 - 2020  
International Workshop on Non-Intrusive Load Monitoring - NILM Workshop 2016, 2020, 2022

#### TECHNICAL SESSION CHAIR:

International Workshop on Non-Intrusive Load Monitoring - NILM Workshop 2018, 2022  
IEEE Energy and Sustainability in Small Developing Economies - ES2DE 2017

## PUBLICATIONS

### JOURNALS

1. Velosa, N., Gomes, E., Morais, M., **Pereira, L. (2023)** "PROCSIM: An Open-Source Simulator to Generate Energy Community Power Demand and Generation Scenarios," *Energies*, MDPI, doi: 10.3390/en16041611
2. Pedro, A., Krutnik, M., Yadack, V. M., **Pereira, L.**, Morais, H. (2022) "Opportunities and Challenges for Small-Scale Flexibility in European Electricity Markets," *Utilities Policy*, Elsevier, doi: 10.1016/j.jup.2022.101477

3. Amantegui, J., Morais, H., **Pereira, L. (2022)** "Benchmark of Electricity Consumption Forecasting Methodologies Applied to Industrial Kitchens," *Buildings, MDPI*, doi: 10.3390/buildings12122231
4. Bousbiat, B., Faustine, A., Klemenjak, C., **Pereira, P.**, Elmenreich, W. (2022) "Unlocking the Full Potential of Neural NILM: On Automation, Hyperparameters & Modular Pipelines", *Transactions on Industrial Informatics, IEEE*, doi: 10.1109/TII.2022.3206322
5. Góis, J., **Pereira, L.**, Nunes, N. (2022) "A Data-Centric Analysis of the Impact of Non-Electric Data on the Performance of Load Disaggregation Algorithms", *Sensors, MDPI*, doi: 10.3390/s22186914
6. Fiqueli, Z., **Pereira, L. (2022)** "Privacy Protection in Smart Meters using Homomorphic Encryption: an overview", *WIREs Data Mining and Knowledge Discovery, Wiley*, doi: 10.1002/widm.1469
7. **Pereira, L.**, Velosa, N., Pereira, M. (2022) "A Data Model and File Format to Represent and Store High Frequency Energy Monitoring and Disaggregation Datasets", *Scientific Reports, Nature*, doi: 10.1038/s41598-022-14517-y
8. Gomes, L., Morais, H., Rodrigues, C., Gomes, E., **Pereira, L.**, Vale, Z. (2022) "Impact of Forecasting Models Errors in a Peer-to-Peer Energy Sharing Market", *Energies, MDPI*, doi: 10.3390/en15103543
9. **Pereira, L.**, Costa, D., Ribeiro, M. (2022) "A residential labeled dataset for smart meter data analytics", *Scientific Data, Nature*, doi: 10.1038/s41597-022-01252-2
10. Faustine, A., **Pereira, L. (2022)** "FPSeq2Q: Fully Parameterized Sequence to Quantile Regression for Net-Load Forecasting with Uncertainty Estimates", *Transactions on Smart Grid, IEEE*, doi: 10.1109/TSG.2022.3148699
11. Góis, J., **Pereira, L. (2021)** "A Novel Methodology for Identifying Appliance Usage Patterns in Buildings Based on Auto-Correlation and Probability Distribution Analysis", *Energy and Buildings, Elsevier*, doi: 10.1016/j.enbuild.2021.111618
12. Quintal, F., Garigali, D., Vasconcelos, D., Cavaleiro, J., Santos, W., **Pereira, L. (2021)** "Energy Monitoring in the Wild: Platform Development and Lessons Learned from a Real-World Demonstrator", *Energies, MDPI*, doi: 10.3390/en14185786
13. **Pereira, L.**, Aguiar, V., Vasconcelos, F. (2021) "FIKWATER: A Water Consumption Dataset from Three Restaurant Kitchens in Portugal", *Data, MDPI*, doi: 10.3390/data6030026
14. **Pereira, L.**, Aguiar, V., Vasconcelos, F. (2021) "FIKWASTE: A Waste Generation Dataset from Three Restaurant Kitchens in Portugal", *Data, MDPI*, doi: 10.3390/data6030025
15. Völker, B., Reinhardt, A., Faustine, A., **Pereira, L. (2021)** "Watt's up at Home? Smart Meter Data Analytics from a Consumer-Centric Perspective" *Energies, MDPI*, doi: 10.3390/en14030719
16. **Pereira, L.**, Cavaleiro, J., Barros, L. (2020) "Economic Assessment of Solar-Powered Residential Battery Energy Storage Systems: The Case of Madeira Island, Portugal" *Applied Sciences, MDPI*, doi: 10.3390/app10207366
17. **Pereira, L.**, Nunes, N. (2020) "An Empirical Exploration of Performance Metrics for Event Detection Algorithms in Non-Intrusive Load Monitoring", *Sustainable Cities and Society, Elsevier*, doi: 10.1016/j.scs.2020.102399
18. Faustine, A., **Pereira, L.**, Klemenjak, C. (2020) "Adaptive Weighted Recurrence Graphs for Appliance Recognition in Non-Intrusive Load Monitoring", *Transactions on Smart Grid, IEEE*, doi: 10.1109/TSG.2020.3010621

19. Faustine, A., **Pereira, L. (2020)** "Multi-label Learning for Appliance Recognition in NILM using Fryze-Current Decomposition and Convolutional Neural Network", *Energies, MDPI*, doi: 10.3390/en13164154
20. Faustine, A., **Pereira, L. (2020)** "Improved Appliance Classification in Non-Intrusive Load Monitoring Using Weighted Recurrence Graph and Convolutional Neural Networks", *Energies, MDPI*, doi: 10.3390/en13133374
21. Câmara, E., **Pereira, L. (2020)** "PB-NILM: PinBall Guided Deep Non-Intrusive Load Monitoring", *Access, IEEE*, doi: 10.1109/ACCESS.2020.2978513
22. Hashmi, Md U., Deka, D., Bušić, A., **Pereira, L.**, Backhaus, S. (2020) "Arbitrage with power factor correction using energy storage", *Transactions on Power Systems, IEEE*, doi: 10.1109/TPWRS.2020.2969978
23. **Pereira, L.**, Nunes, N. (2019) "Understanding the practical issues of deploying energy monitoring and eco-feedback technology in the wild: Lesson learned from three long-term deployments.", *Energy Reports, Elsevier*, doi: 10.1016/j.egyrs.2019.11.025
24. **Pereira, L. (2019)** "NILMPEds: A Performance Evaluation Dataset for Event Detection Algorithms in Non-Intrusive Load Monitoring", *Data, MDPI*, doi: 10.3390/data4030127
25. Pereira, M., Velova, N., **Pereira, L. (2019)** "dsCleaner: A Python Library to Clean, Preprocess and Convert Non-Intrusive Load Monitoring Datasets", *Data, MDPI*, doi: 10.3390/data4030123
26. Torabi, R., Rodrigues, S., Cafôfo, N., **Pereira, L.**, Quintal, F., Nunes, N., Morgado-Dias, F. (2018) "A global monitoring system for electricity consumption and production of household roof-top PV systems in Madeira", *Neural Computing and Applications, Springer*, doi: 10.1007/s00521-018-3832-3
27. Baptista, D., Shanawaz Mostafa, S., **Pereira, L.**, Sousa, L., Morgado-Dias, F. (2018) "Implementation Strategy of Convolution Neural Networks on Field Programmable Gate Arrays for Appliance Classification Using the Voltage and Current (V-I) Trajectory", *Energies, MDPI*, doi: 10.3390/en11092460
28. **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*, doi: 10.1002/widm.1265
29. Scott, M., **Pereira, L.**, Oakley, I. (2014) "Show Me or Tell Me: Designing Avatars for Feedback", *Interacting with Computers, Oxford Academic*, doi: 10.1093/iwc/iwu008
30. Barreto, M., Szóstek, A., Karapanos, E., Nunes, N. J., **Pereira, L.**, Quintal, F. (2014) "Understanding Families' Motivations for Sustainable Behaviors", *Computers in Human Behavior, Elsevier*, doi: 10.1016/j.chb.2014.07.042

#### CONFERENCES

31. Barros, L., Barreto, M., **Pereira, L. (2020)** "Understanding the challenges behind Electric Vehicle usage by drivers - a case study in the Madeira Autonomous Region" in *Proceedings of the International Conference of ICT for Sustainability 2020, ICT4S '20*
32. Hashmi, Md U., Cavaleiro, J., **Pereira, L.**, Bušić, A. (2020) "Sizing and Profitability of Energy Storage for Prosumers in Madeira, Portugal" in *Proceedings of the Eleventh Conference on Innovative Smart Grid Technologies, ISGT '20*
33. Hashmi, Md U., Deka, D., Bušić, A., **Pereira, L.**, Backhaus, S. (2019) "Co-optimizing Energy Storage for Prosumers Using Convex Relaxations", in *Proceedings of the 20th International Conference on Intelligent Systems Applications to Power Systems, ISAP '19*
34. Klemenjak, C., Reinhardt, A., **Pereira, L.**, Berges, M., Makonin, S., Elmenreich, W. (2019) "Electricity Consumption Data Sets: Pitfalls and Opportunities", in *Proceedings of the 6th*

35. **Pereira, L.**, Cavaleiro, J. (2019) "On the Value Proposition of Battery Energy Storage in Self-Consumption Only Scenarios: A Case-Study in Madeira Island", in *Proceedings of the IEEE 45<sup>th</sup> Annual Conference of the Industrial Electronics Society, IECON '19*
36. Barreto, M., **Pereira, L.**, Quintal, F. (2019) "The Acceptance of Energy Monitoring Technologies – The Case of Local Prosumers", in *Proceedings of the International Conference of ICT for Sustainability 2019, ICT4S '19*
37. Hashmi, Md U., **Pereira, L.** Bušić, A. (2019), "Energy Storage in Madeira, Portugal: Co-optimizing for Arbitrage, Self-Sufficiency, Peak Shaving and Energy Backup", in *Proceedings of the 13<sup>th</sup> IEEE PowerTech 2019, PowerTech '19*
38. **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*
39. **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*
40. **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*
41. **Pereira, L.**, Nunes, N. (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*
42. Quintal, F., **Pereira, L.**, Nunes, N., 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]
43. **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*
44. Quintal, F., **Pereira, L.**, Nunes, N.J., Nisi, V., 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*
45. 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]
46. **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*
47. **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*
48. **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]



49. Nunes, N.J., **Pereira, L.**, Quintal, F. and Bergés, 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*
50. 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**

51. Jagadeesan Nair,V., Pereira, L. (2022) "Improving Accuracy and Convergence of Federated Learning Edge Computing Methods for Generalized DER Forecasting Applications in Power Grid", In *NeurIPS 2022 Workshop:Tackling Climate Change with Machine Learning, TCCML' 22*
52. Beveridge, M, **Pereira, L. (2022)** "Interpretable Spatiotemporal Forecasting of Arctic Sea Ice Concentration at Seasonal Lead Times", In *NeurIPS 2022 Workshop:Tackling Climate Change with Machine Learning, TCCML' 22*
53. Manca, M., Faustine,A., **Pereira, L. (2022)** "Appliance Recognition with Combined Single- and Multi-label Approaches", In *Proceedings of the 6<sup>th</sup> International Workshop on Non-Intrusive Load Monitoring, NILM '22*
54. Gois, J., Klemenjak, C., **Pereira, L. (2020)** "On the Relationship between Seasons of the Year and Disaggregation Performance", In *Proceedings of the 5<sup>th</sup> International Workshop on Non-Intrusive Load Monitoring, NILM '20*
55. Faustine, A., **Pereira, L.**, Bousbiat, H., Kulkarni, S. (2020) "UNet-NILM: A Deep Neural Network for Multi-tasks Appliances State Detection and Power Estimation in NILM", In *Proceedings of the 5<sup>th</sup> International Workshop on Non-Intrusive Load Monitoring, NILM '20*
56. Hashmi, Md U., Deka, D., **Pereira, L.**, Bušić, A. (2020) "Energy Storage Optimization for Grid Reliability", In *e-Energy '20: Proceedings of the Eleventh ACM International Conference on Future Energy Systems, Energy Storage' 20*
57. **Pereira, L.**, Nunes, J.N. (2018) "Comparison of Performance Metrics for Event Detection Algorithms in NILM", In *Proceedings of the 4<sup>th</sup> International Workshop on Non-Intrusive Load Monitoring, NILM '19*
58. 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**

59. Velosa, N., **Pereira, L. (2021)** "Towards Pro-Social Load Balancing in Energy Communities", in *Proceedings of the 6<sup>th</sup> ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation, BuildSys '21* [poster]
60. **Pereira, L.**, Aguiar,V., Vasconcelos, F. (2019) "Future Industrial Kitchen: Challenges and Opportunities", in *Proceedings of the 6<sup>th</sup> ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation, BuildSys '19* [abstract paper]
61. Vasconcelos, F., Aguiar,V., **Pereira, L., (2019)** "Ultrasonic Waste Monitoring in the Future Industrial Kitchen", in *Proceedings of the 17<sup>th</sup> ACM Conference on Embedded Networked Sensor Systems, SenSys '19* [poster]
62. **Pereira, L. (2019)** "A Mouse (H)Over a Hotspot Survey: An Exploration of Patterns of Hesitation through Cursor Movement Metrics", *Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems, CHI 2019* [poster]
63. Quintal, F., Scuri, S., Barreto, S., **Pereira, L.**, Vasconcelos, D., Pestana, D. (2019) "", *Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems, CHI 2019* [poster]

64. Barros, L., **Pereira, L.**, and Pyakurel, P. (2018) "On the Challenges of Charging Electric Vehicles in Domestic Environments", *Proceedings of the 9<sup>th</sup> International Conference on Future Energy Systems, e-Energy '18* [poster]
65. **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]
66. **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]
67. 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]
68. **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]
69. **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]
70. 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]
71. **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 5<sup>th</sup> International Conference on Future Energy Systems, e-Energy '14* [poster]
72. 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]
73. **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]
74. 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]
75. 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]
76. 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]

#### BOOKS

77. Reinhardt, A., **Pereira, L.** (2021) "Energy Data Analytics for Smart Meter Data", MDPI Books, ISBN (PDF): 978-3-0365-2017-9, doi: 10.3390/books978-3-0365-2017-9

#### SELECTED TALKS

1. "SMILE - Smart Island Energy Systems" (2021), Island Energy Transition Experience in H2020 Projects - Chapter 1 DSM, Flexibility and Energy Management, Online

2. “Energy Monitoring, Storage Control and AI in the Wild: Experiences from a real-world demonstrator” (2020), CeADAR: Ireland national centre for Applied AI and Data Analytics, Online
3. “Furthering Energy and Environment Research at ITI/LARSys” (2019), University of Klagenfurt, Klagenfurt, Austria
4. “SoCoL: Semi-automatic Collaborative Labelling for NILM datasets” (2018), European Non-Intrusive Load Monitoring Workshop, Duisburg, Germany

## ACADEMIC VISITS

1. Visiting researcher at the University of Cagliari, Cagliari, Italy (April 2022)
2. École Normale Supérieure – PSL Université Paris, (December 2019)
3. Visiting researcher at the University of Klagenfurt, Klagenfurt, Austria (September 2019)

## ACADEMIC SERVICE

### MANAGEMENT OF SCIENCE AND TECHNOLOGY

1. Member of the ITI/LARSys Scientific Committee, 2020 - 2022

### PARTICIPATION AS A MEMBER OF COMPETITIVE ADMISSIONS

1. Agencia Nacional de Investigación y Desarrollo (Chile), Fondecity Regular, 2023
2. Dutch Research Council (NWO) Talent Programme, 2021

## MEMBERSHIPS AND AFFILIATIONS

### MEMBERSHIPS

Ordem dos Engenheiros de Portugal (Portuguese Order of Engineers)	[2011 - present]
IEEE	[2011 - present]
ACM	[2017 - present]