| Formulário de Proposta de Projeto/Estágio | | |
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| **Ano 2022/2023, Licenciatura em Engenharia Informática / CEE / Universidade da Madeira** | | |
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| Informação sobre o(s) Orientador(es) | | |
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| Título do Projeto: **Empirical exploration of performance metrics for power and energy estimation using NILM** | | |
|  |  |  |
| Nome do Professor Orientador |  | Contacto Telefónico |
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| URL do Projeto |  | E-mail |

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| Informação sobre a Dissertação |
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| Informática/Estágio |
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| Área Científica  Motivação   | Non-Intrusive Load Monitoring (NILM) aims to identify the consumption of individual appliances using machine-learning and taking as input only the aggregated demand. A crucial step in any machine-learning approach, normally overlooked by many researchers, is the performance evaluation step; particularly the selection of the most adequate performance metrics. In the case of NILM, this aspect becomes more critical since some appliances are more widely used than others (e.g., a refrigerator will consume electricity during several moments of the day, whereas a kettle may only be used once or twice a day). Therefore, it is necessary to understand which performance metrics are more adequate to evaluate the performance of NILM algorithms, and if necessary propose new or extended versions of existing metrics. | | --- |   Objetivos   | The main objective of this project is to study the behavior of performance evaluation metrics when applied to NILM algorithms, in particular to power and energy estimation. The following tasks should be completed by the student:   1. Get acquainted with the NILM problem, its performance evaluation, and the DeepNILMTK platform [REF] 2. Design and run a large number of NILM experiments and store the results 3. Conduct research in performance metrics for NILM and implement the ones that are more suitable for this research. 4. Calculate the performance metrics using the results obtained from step 3. 5. Apply data science techniques to the resulting performance metrics to identify important relationships among them. | | --- |   Recursos   | O trabalho será desenvolvido no ITI, LARSyS no Funchal. | | --- |   Preencher no caso de o projeto ser desenvolvido numa Entidade Exterior:   |  |  | ([       ]) | | --- | --- | --- | | Nome da Entidade |  | Contacto Telefónico | |  |  |  | | Morada |  | E-mail |   Observações e/ou Pré-Requisitos   |  | | --- | |