FACULDADE DE ENGENHARIA DA UNIVERSIDADE DO PORTO

Aplicação de técnicas de aprendizagem profunda estruturada para diagnóstico de funcionamento de centrais fotovoltaicas.

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FOR JURY EVALUATION

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Abstract

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Acknowledgments

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David Freire

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Author

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Symbols and Abbreviations

PV Photovoltaic

Chapter 1

Introduction

1.1 Contextualization

The XIX century represents a substantial change to how the world percieves energy resources, characterized by the urge to invest in renewable energy sources to power modern societies. These relatively modern alternatives are proving to be cost efficient and

1.2 Motivation

Given the wide spread increase in construction of PV (Photovoltaic) farms, there comes a need to maintain these facilities operational and yeilding at their maximum efficiency. For that to be achieved, a series of routines must be executed in order to maintain the state estimation of a farm, as it is desirable to know if any action must be taken to restore or fix components from a faulty scenario.

1.3 Questions

1.4 Objectives

The main scope of this paper is to apply deep learning techniques to diagnose the operation of PV farms. It is desired to achieve the following:

- Identify and study the existing tools
- Adapt and/or develop a new tool
- Apply and test the new tool on a real case study
- Validate methodologies through benchmarking and reference tools

1.5 Methodology

1.6 Impact

Appendix A

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