



Opportunity of Msci Dissertation (Tesi di Laurea)

Context of the research activity	
Motivations and objectives of the research	<p>A fundamental issue to address for the development of e-mobility systems is the improvement of the actual capability of the electrical distribution network to withstand the relevant additional loads, which change the probability of failure of the single devices and, thus, the behavior of the grid, in a context in which climate extremes and natural disasters become more and more frequent.</p> <p>The enhancement of the electrical network resilience is a key success factor to effectively cope with these scenarios. The characterization of the reliability of the electrical network components is a fundamental step for resilience analysis, which is challenged by its fast modification, the variability of the loads, the lack of reliability data about very old components, etc.</p> <p>The objective of this thesis work is to address specific methodological issues to improve the reliability models of the electrical network components, such as the modeling of piece wise constant hazard rate, time-varying covariates. On this basis, resilience models will be developed, to guide the network renovation activities.</p>
Field of application of the research	Large infrastructures such as electric, gas or water distribution networks.
Required Skills	Statistics. Interest in developing innovative algorithms to tackle real industrial applications.
Educational objectives	To give an expert a systemic view and prepare him/her with the capability of developing and implementing novel techniques, algorithms and methodologies.
Composition of the research group	Number of Full Professors: 1 Number of research consultant: 1
Names of the research director	Enrico Zio
E-mail address, phone number and web-page	Email: enrico.zio@polimi.it Ph: +39 02 2399 6340
Duration of the dissertation	
Total thesis duration	Approximately 9 Months. At most 1 pending exam.

Starting date: April 2021