Theses with international collaborations

Theses on risk and resilience assessment of complex systems and critical infrastructures

Simulation-based Resilience Optimization of Cyber-Physical Systems against Uncertain Cyber-Attacks (with City University of Hong Kong). Link: http://www.lasar.polimi.it/wp-content/uploads/2021/05/Proposta-di-tesi_simulation-based-resilience.pdf

Allocation optimization of Defense Resources against Cyber Attacks to Cyber-Physical Systems (with City University of Hong Kong). Link: http://www.lasar.polimi.it/wp-content/uploads/2021/05/Proposta-di-tesi_ARAVOI.pdf

Modeling the Competing Diffusion of Information vs Disinformation and Resulting Infrastructure Impacts (with University of Oklahoma, USA) Link: http://www.lasar.polimi.it/wp-content/uploads/2021/04/Thesis-Oklahoma-disinformation-proposal-2.pdf

Identifying Relationships Between Information and Physical Layers with Signal Analysis (with University of Oklahoma, USA) Link: http://www.lasar.polimi.it/wp-content/uploads/2021/04/Thesis-Oklahoma-disinformation-proposal-1-.pdf

Extended survival signature approach for multi-state systems (with Leibniz University of Hannover, Germany) Link: http://www.lasar.polimi.it/wp-content/uploads/2021/01/EXTENDED-SURVIVAL-SIGNATURE-APPROACH-FOR-MULTI-STATE-SYSTEMS.pdf

Advanced Monte Carlo simulation for efficient approximation of the survival signature (with Leibniz University of Hannover, Germany) http://www.lasar.polimi.it/wp-content/uploads/2021/01/Advanced-Monte-Carlo-simulation-for-efficient-approximation-of-the-survival-signature-.pdf

Semi-Supervised Class-Imbalance Learning for Identifying Rare Events (with University of Windsor, Canada) Link: http://www.lasar.polimi.it/wp-content/uploads/2021/01/Semi-Supervised-Class-Imbalance-Learning-for-Identifying-Rare-Events.pdf

Theses on reliability assessment

Advanced Monte Carlo simulation for efficient dynamic reliability assessment of polymer electrolyte membrane fuel cell systems (with Leibniz University of Hannover, Germany) Link: http://www.lasar.polimi.it/wp-content/uploads/2021/03/2021_dynamic-reliability-PEM-Fuel-Cell-p-box-uncertainty.pdf

Theses on Prognostics and Health Management for Predictive Maintenance

Uncertainty-driven AI methods for Prognostics and Health Management (with ETH Zurich, Switzerland) Link: http://www.lasar.polimi.it/wp-content/uploads/2021/04/2021_fink.pdf

Development of State-of-Health Indicators for Researchable Batteries Using DeepTransfer Learning Methods (with Ecole Polytechnique, France) Link http://www.lasar.polimi.it/wp-

content/uploads/2021/04/Development-of-State-of-Health-Indicators-for-Researchable-Batteries-Using-Deep-Transfer-Learning-Methods.pdf

Design, development and deployment of a computer-aided platform for the identification and classification of defects in digital images (with CERN, Switzerland) Link: http://www.lasar.polimi.it/wp-content/uploads/2021/03/Design-development-and-deployment-of-a-computer-aided-platform-for-the-identification-and-classification-of-defects-in-digital-images.pdf

Deep Transfer Learning Methods for Prognostics and Health Management (PHM) of Batteries (with Tsinghua University, China) Link: http://www.lasar.polimi.it/wp-content/uploads/2021/01/Deep-Transfer-Learning-Methods-for-Prognostics-and-Health-Management-PHM-of-Batteries.pdf

Reliability models (with Infineon, Austria within the IRel4.0 European Project). http://www.lasar.polimi.it/wp-content/uploads/2021/06/Proposta-di-tesi_reliability-models.pdf

Theses with industrial partners

Development of machine learning techniques for data-driven DWIM systems (with ARAMIS Srl, Italy) Link: http://www.lasar.polimi.it/wp-content/uploads/2021/03/Development-of-machine-learning-techniques-for-data-driven-DWIM-systems.pdf

Theses internal at LASAR

Theses on risk and resilience assessment of complex systems and critical infrastructures

Ecology network analysis methods for balancing efficiency and resilience of critical systems and infrastructures. Link: http://www.lasar.polimi.it/wp-content/uploads/2021/01/Ecology-network-analysis-methods-for-balancing-efficiency-and-resilience-of-critical-systems-and-infrastructures.pdf

Uncertainty quantification methods in the risk analysis of energy systems exposed to NaTech hazards and accident scenarios. Link: http://www.lasar.polimi.it/wp-content/uploads/2021/01/Uncertainty-quantification-methods-in-the-risk-analysis-of-energy-systems-exposed-to-NaTech-hazards-and-accident-scenarios.pdf

Uncertainty Quantification in Computational Fluid Dynamics (CFD) for Risk Assessment. Link: http://www.lasar.polimi.it/wp-content/uploads/2021/01/Uncertainty-Quantification-in-Computational-Fluid-Dynamics-CFD-for-Risk-Assessment.pdf

Methods for the evaluation and optimization of the resilience systems, plants and infrastructures. Link: http://www.lasar.polimi.it/wp-content/uploads/2021/01/Methods-for-the-evaluation-and-optimization-of-the-resilience-systems-plants-and-infrastructures.pdf

Theses on Prognostics and Health Management for Predictive Maintenance

Deep Learning Methods for Extracting Information from Text Documents in Prognostics and Health Management Applications. Link: http://www.lasar.polimi.it/wp-content/uploads/2021/01/Deep-Learning-Methods-for-Extracting-Information-from-Text-Documents-in-Prognostics-and-Health-Management-Applications.pdf