Institut für
Integrierte Produktion Hannover

Bachelor thesis, Master thesis, Project thesis

Using AI and ExplainableAI to Identify the Best Wind Energy Sites

As part of the WindGISKI collaborative project, AI models were developed to identify potential areas for new wind energy sites based on current wind turbine locations. For training purposes, current sites were considered good locations, while poor locations were determined using expert scoring. Based on this, supervised models (trained on both good and poor locations) and one-class models (trained only on good locations) were developed. These models were then applied to unknown areas, revealing differences in the potential evaluation of sites.

Your tasks

Your task is to analyze the differences between the models and derive insights.

This will be accomplished through four work packages:

1. First, an introduction to the necessary foundational concepts is required. Special emphasis should be placed on the differences between supervised and one-class approaches.
2. In the second work package, studies focusing on the "comparison of AI models in the context of identifying potential areas for wind energy" should be identified.
3. Subsequently, a method should be developed to compare the differences and similarities in the model results.
4. In the fourth work package, the comparison method should be implemented. Finally, the results need to be critically evaluated.

Your profile

You are studying one of the following fields:

- Computer Science
- Production & Logistics
- Mechanical Engineering
- Industrial Engineering
- Electrical Engineering

You have an interest in wind energy and artificial intelligence.

Additionally, you have basic knowledge of programming in Python.

Good German language skills, both written and spoken, are required.

Bitte sende deine aussagekräftige Bewerbung in einer einzigen PDF-Datei an jobs@iph-hannover.de.

Die Bewerbung muss Anschreiben, Lebenslauf sowie Prüfungsleistungen des Studiums / Zeugnisse enthalten.

Contact

Paolo Pappe
M.Sc.

+49 (0)511 279 76-446

IPH – Institut für Integrierte Produktion Hannover gGmbH
Hollerithallee 6
30419 Hannover

www.iph-hannover.de

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