Workshop

Next-Gen Cleantech Solutions: Mining Insights from Media and Patent Data with Natural Language Processing (NLP) and Large Language Models (LLMs)

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Description

At a time when tackling environmental challenges is of paramount importance, the cleantech industry plays a central role in promoting sustainable solutions. However, technological innovation in the cleantech sector requires a deep understanding not only of the technologies, but also of the market requirements. This information is usually embedded in a large amount of patent and media data, which is difficult to analyze manually to effectively capture the development trend. Using Natural Language Processing (NLP) and the latest advancements in Large Language Models (LLMs) is a natural choice to accelerate innovation. In this workshop, we will share our insights gained in solving this task. Several presentations on various relevant topics will be offered, followed by a hands-on session where participants can try out our LLMs-powered cleantech question-answering and recommendation system.

Schedule

10:30 – 10:35 Welcome

10:35 – 11:35 Part 1: Decoding Cleantech

- 10:35 – 10:50 Dr. Janna Lipenkova (Anacode): Disentangling the Global Cleantech Innovation Landscape
- 10:50 – 11:05 Dr. Susie Xi Rao (ETH Zurich): Large Language Models in Cleantech
- 11:05 – 11:20 Prof. Dr. Daniel Perruchoud (FHNW): RAG and Its Application for Cleantech Innovation
- 11:20 – 11:35 Dr. Guang Lu (HSLU): Leveraging Large Language Models for Next-Gen Cleantech Recommender Systems

11:35 – 11:40 Break

11:40 – 12:30 Part 2: Emerging Visions in Cleantech

- 11:40 – 12:05 Dr. Guang Lu (HSLU): Student Work Highlights – Accelerating Cleantech Advancement through NLP-powered Text Mining and Knowledge Extraction
- 12:05 – 12:30 Prof. Dr. Daniel Perruchoud (FHNW): Student Work Highlights – RAG in Cleantech

12:30 – 13:45 Lunch Break

13:45 - 15:30 Part 3: NLP in Action (Group Work in Parallel)

- Group 1 by Dr. Guang Lu (HSLU): Cleantech Text Analysis and NLP
- Group 2 by Prof. Dr. Daniel Perruchoud & George Rowlands (FHNW): Cleantech RAG

15:30 - 15:45 Business Challenges and Solutions, Summary and Feedback

- Dr. Janna Lipenkova (Anacode): NLP for Innovation Intelligence