ExoMatter *in collaboration with* celonis

Project Studies: Analysis of R&D Processes in Materials Development

Intro

Advanced materials and chemicals are essential for our modern society. Without the development of specialized materials, batteries for electric cars would not exist, and sensors and displays in mobile phones would not work. All these technological solutions rely on chemists and materials scientists who use their knowledge to come up with advanced materials most people never even heard about.

New materials in the chemical industry and in high-tech areas such as semiconductor electronics, photovoltaics and others are today still often a product of extensive manual literature review and trial and error in the laboratory. Also, the resulting data is often fragmented and not well organized.

Our software enables materials R&D staff to identify chemical compositions based on physical, chemical, sustainability and cost criteria. By shortcutting trial and error in the laboratory to a large extent, we help identify better solutions faster. This data-driven approach relies on quantum-chemical calculations and Machine Learning. Customers save on average EUR 100k per implementation.

To further develop our software, we aim to improve our understanding of the current R&D processes in industry and academia and make it even more clear in which steps we create value.

Project tasks

- Contact relevant companies in the chemical industry and other industries with strong dependence on materials research
- Conduct interviews with R&D staff in these companies and create event logs of their R&D process, additionally collect digital event logs if available
- Analyze the event logs discovered by using the market-leading process mining and execution management Software of Celonis. While doing this you will perform an R&D process discovery and build analyses to x-ray and understand R&D processes.

Requirements

- Team of 2-4 students in Bachelor or Master program of Management and Technology or other fitting subjects
- Good communication and analytical skills
- All team members should be proficient in English, at least one team member should speak German fluently
- Interest in R&D processes in the chemical industry and process analysis, Chemistry and/or Informatics as specializations are a plus

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About ExoMatter

ExoMatter is a startup founded in 2022 as a spin-off of the German Aerospace Center (DLR). We have developed software to support materials development. Using scientific data, computational materials development methods and our own algorithms, we provide a digital shortlist of materials and manage R&D data using our cloud-based software solution. Our team has backgrounds in science (PhDs in Chemistry and Physics) as well as Management and Technology. Our Co-founder & CEO Josua is a Chemist who worked at Celonis before starting ExoMatter. You will be closely working with him and the founding team of ExoMatter and experience the thrill of a young startup.

About Celonis

Celonis is the world market-leader in process mining software and Execution Management. Celonis software provides a full set of platform capabilities for business executives and users to eliminate billions in corporate inefficiencies, provide better customer experience and reduce carbon emissions. Celonis has thousands of implementations with global customers and is headquartered in Munich, Germany and New York City, USA with more than 20 offices worldwide. The project study will be supported by the Celonis Academic Alliance.

Your application

Please direct your application (joint cover letter + CVs and transcripts of each team member) to Dr. Josua Vieten: j.vieten@exomatter.ai

Start date: Sept to Nov 2022

Working mode: remote collaboration & in-person meetings at Munich Urban Colab, WERK1, and Celonis HQ-Munich.