

DO YOU WANT TO IMMERSE YOURSELF IN PRACTICAL WORK WHILE YOU ARE STILL STUDYING? THEN WE, THE FRAUNHOFER IEG, CAN OFFER YOU AN EXCITING JOB IN BOCHUM.

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## MASTER THESES IN THE FIELD OF MONITORING AND AI

### Application of Machine Learning Based Natural Language Processing in Data Analysis

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*The Fraunhofer Institute for Energy Infrastructures and Geothermal Energy IEG was founded to shape the next phase of the energy transition and is now looking for creative minds with a start-up mentality who want to get involved in building up the institute and make use of personal scope for creativity.*

#### **About the project:**

*The geothermal drilling industry faces several challenges, such as poor overall drilling safety and performance and lack of knowledge of the well bottom, resulting in NPT, tripping times, etc. In order to address and solve the problems in drilling for geothermal resources that increase the uncertainty and cost of well construction a software concept was developed. The concept comprises an innovative drilling advisory system that is based on a combination of advanced monitoring systems and multiple data-driven ML modules, each of which is responsible for either analyzing, predicting, or optimizing some aspect of the drilling or completion process.*

#### **Your tasks**

- Preprocessing and analyzing drilling and geophysical data in numerical and reporting formats
- Application of natural language processing (NLP) for annotating and extracting relevant data from technical reports
- Development of a database based on the results of the evaluation of the drilling reports
- Evaluating data and results in the context of the project

#### **Your skills**

- You have a bachelor's degree in mechanical engineering, mechatronics, computer science, petroleum engineering or electrical and energy engineering
- You have programming experience (ideally Python)
- Knowledge of machine learning, deep learning and data mining is a plus
- Knowledge of drilling technology is a plus
- Willingness to work independently and bring innovative ideas into implementation
- Good English skills, both written and spoken

#### **What you can expect**

- A friendly and creative working environment
- Flexible working hours that fit in with your studies
- Individual development opportunities
- An innovative research environment with industry proximity
- Creative freedom in the implementation
- Networking with research partners and industry
- A thesis paid as an assistant scientist at the IEG

People with severe disabilities are given preference in the event of equal suitability. We would like to point out that the chosen job title also includes the third gender. The Fraunhofer-Gesellschaft attaches great importance to professional equality irrespective of gender.

Please apply online only at:

<https://recruiting.fraunhofer.de/Vacancies/51405/Application/CheckLogin/1?lang=ger>

Questions will be gladly answered by:

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