Contact
Amanda Fors, Engagement Manager
070-227 05 45
amanda@mestro.com

Master Thesis

Forecast energy consumption in buildings to help Mestro's customers save energy

Background

Mestro is a web-based Energy Management System for real estate owners. We collect, analyze and visualize energy consumption data (as well as transportation-, waste- and CO2e-data) for our customers' approximately 5000 buildings. The buildings are spread out geographically in Sweden, Norway, Denmark, Finland and Poland. Our service enables customers to monitor, evaluate and reduce energy consumption in buildings with the aim of controlling costs and minimizing climate impact.

Our databases are a treasure trove for applying Machine Learning methods. Mestro has collected high-resolution energy (electricity, heating, and cooling) and property data (year of construction, area, outdoor temperatures etc.) with good quality since our inception. The selected student will be able to study more than 9000 unique timeseries (i.e. unique meters) with hourly consumption values stretching three to five years back in time.

We are in the middle of an exciting scaleup journey that brings a lot of energy to the team. As a Master Thesis student at Mestro you will be welcomed as a member of our lively, inclusive and dedicated team with diverse backgrounds in IT/development, energy, real estate, sustainability and business management.

Thesis Topic

The thesis will be focused on forecasting the energy consumption in buildings (e.g. electricity consumption), with some optional "add-ons" where student will also develop…;

- … alarms to alert customers when the consumption deviates from forecast.
- … internal alarms trigged by absent, or zero-, values from data suppliers.
- … methods to fill gaps in data series with interpolation.
- … an extended forecast model based on official weather forecasts.
- … a method to determine the proportion of electricity consumption in a building that is related to the local climate at the building's geographical location.

Mestro will develop the thesis issue in close collaboration with the student and are very interested in the student's approach to the problem.

Background and competence
We expect the student to independently develop his/her work, from the selection of appropriate AI/Machine Learning methods, applying models and novel algorithms, to drawing conclusions based on the results and how these generate value for Mestro's customers within the project definition and beyond.

We also expect the student to … ;

- … be able to communicate with relational databases, e.g. Azure SQL Server.
- … be able to communicate with nosql-databases, e.g. Azure Cosmos DB and Azure Table Storage.
- … have basic knowledge in Java and Javascript.

Practical information
The thesis is a Master Thesis (30 hp) on 100% and will take place during spring term 2021.

As a thesis student at Mestro you will have the opportunity to sit together with our team in our new fresh office in the center of Stockholm. Because of the pandemic situation we mainly work from home for the moment but we will find a way of work which fits both Mestro and the student.

Application
Please send your application with resume and cover letter to amanda@mestro.com or contact me on 070-227 05 45 if you have any questions.