

The bioinformatics research lab at the Technical University of Munich, TUM Campus Straubing for Biotechnology and Sustainability and Weihenstephan-Triesdorf University of Applied Sciences is looking for a candidate for a Bachelor's or Master's thesis with the topic

## Application of Time Series Forecasting and Machine Learning approaches for horticultural sales predictions

at the earliest possible date.

Predicting the future based on historical observations is a common problem in many areas. For this purpose, modern statistical and machine learning based methods for Time Series Forecasting are widely applied. In our research project, we focus on sales of small and medium-sized horticultural companies. The goal of this thesis is to apply already implemented classical Time Series Forecasting (e.g. Exponential Smoothing or ARIMA) and Machine Learning (e.g. XGBoost or LSTM) approaches to datasets provided by a partner company. Finally, you should draw a conclusion whether horticultural sales are predictable and methods generalize well across products and companies.

### Your tasks:

- Literature research on (multivariate) time series forecasting with a focus on sales prediction
- Data analysis and visualization of provided datasets
- Application of classical Time Series Forecasting and Machine Learning approaches on these datasets
- Analysis and visualization of the results with a focus on generalization across products and companies

### Your skills:

- You are close to finishing your Bachelor's or Master's degree, preferably in a technical field
- Good programming knowledge, preferably in Python
- Basic knowledge of statistics and good mathematical skills
- First experience with statistical models and machine learning are a plus
- Strong motivation and interest for computer science and machine learning
- Ability to work and learn new topics autonomously
- Proactive, goal-oriented and communicative way of working
- Good language competence in English, written as well as spoken