

## Master Thesis Topic

We offer the following Master thesis topic:

### “Predictive Analytics for Price and Demand Forecasting”

Modern business enterprises are facing complex market, resource and workforce management requirements, involving highly differentiated and dynamic processes, supply chains and demands. Artificial Intelligence (AI) technologies from the fields of Data Mining, Machine Learning and Recommender Systems are getting more and more pervasive to support strategic planning and decision making. The goal of this Master thesis is to perform a systematic investigation of major application areas and key AI technologies constituting the state of the art in predictive analytics for price and demand forecasting in energy, producing and service industries.

The Master thesis topic is suitable for students of Information Management or Applied Informatics. Depending on the specific focus the Master thesis takes, the supervision will be coordinated between:

- Univ.-Prof. Dr. Martin Gebser
- Univ.-Prof. Dipl.-Ing. Dr. Dietmar Jannach
- Assoc.-Prof. Dipl.-Ing. Dr. Erich Christian Teppan
- Postdoc-Ass. Dr. Christian Wankmüller

For further information, please contact **Univ.-Prof. Dr. Martin Gebser** (Martin.Gebser@aau.at), research group for Production Systems.

The following are some (incomprehensive) literature references, which can be consulted as a starting point for going more in depth or broadness while the Master thesis evolves:

- *P. Schwarenthorer, A. Taudes, J. Hunschofsky, C. Magnet, M. Tschandl: Increased Company Performance through Macroeconomics Sales Forecasting: A Case Study. Journal of Japanese Operations Management and Strategy 10(1): 1-17, 2020*
- *M. Seyedan, F. Mafakheri: Predictive Big Data Analytics for Supply Chain Demand Forecasting: Methods, Applications, and Research Opportunities. Journal of Big Data 7: Article 53, 2020*
- *B. Wu, L. Wang, S. Lv, Y. Zeng: Effective Crude Oil Price Forecasting using New Text-based and Big-Data-driven Model. Measurement 168: Article 108468, 2021*
- *N. Ludwig, S. Feuerriegel, D. Neumann: Putting Big Data Analytics to Work: Feature Selection for Forecasting Electricity Prices using the LASSO and Random Forests. Journal of Decision Systems 24(1): 19-36, 2015*