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# MASTER THESIS: Generalized Consumption Model for Predicting the Energy Demand of Battery-Electric Buses

**Field of study: Computer Science, Mathematics, Data Science | Duration: 6 months**

The Mobility & Transport Analytics research group of Salzburg Research is working on a prediction model for the energy demand of battery-electric buses (BEB) in public transportation service within the OptiChargE project. The model builds on operational and movement data of the BEBs, weather data, topology and road network information, and energy consumption data from the operation of seven BEBs on two bus routes in Salzburg. The energy demand prediction will be part of an all-in-one software solution for optimising vehicle and charging schedules with respect to charging capacities and electricity pricing while ensuring a reliable public transport service.

The scope of this thesis is to develop and evaluate a generalized energy demand model for public transport BEBs that is able to predict the energy demand for arbitrary bus routes where no consumption data is available yet. This will enable public transport fleet operators to define the requirements for converting their whole fleet to BEBs more precisely. For model evaluation, data from BEBs operating on selected public transport routes can be collected if needed.

**The following contributions are expected:**

- Comprehensive literature review on the topic
- Conceptualisation and development of a generalized prediction model for BEB energy consumption taking different route characteristics and environmental factors into account
- Evaluation of the prediction quality of the developed model and its ability to predict arbitrary routes

The gross monthly salary for a full-time position/**38.5 hours per week** is at least **EUR 3,141** gross in accordance with the research collective agreement at level D1.

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**We look forward to hearing from you!**

Further details about us at: **www.salzburgresearch.at/karriere**