Examples of
6860: Advanced Topics in Quantitative Economics
for
Business Intelligence

Content

Dependent on the subfield of the PhD student in Business Intelligence, the course content in 6860: Advanced Topics in Quantitative Economics is selected to match that subfield. Here are examples of content of subfields:

- **Visualization, Data Management, and Advanced Analytics:** Build and implement a simple architecture that allows visualizing advanced analytics results in a user interface. For example, showing near-live updates on the relation between sentiment scores from two related SoMe forums. Such a project would involve, 1) continuously scraping from the forums, 2) transforming and storing the data in an SQL database, 3) analyzing the data, and 4) visualizing the results.
- **Interpretable AI:** Dive deep into model interpretability which is the key to explaining your model's inner workings to both laypeople and experts. The student would explore techniques for machine learning interpretability such as global and local model agnostic methods. The course would be evaluated with a written report, which would focus on implementing the chosen interpretability methods to solve a given problem.
- **Advanced Model Deployment:** Investigate practical challenges for automated model deployment and the use of A/B testing in deployment scenarios. For instance, a project could be compare two or more completing models in a deployment scenario. For instance, the student would train two or more completing different machine learning models and deploy them into an A/B test to compare their real time prediction and automatically scale the winning model.
- **Data and Concept Drift:** Data-drift is defined as a variation in the production data from the data that was used to test and validate the model before deploying it in production. A project could discuss how to track different types of data and/or concept drifts using various methods, e.g. sequential analysis or model-based methods. The student would create a data-drift detector and test the implementation in various scenarios using fake and real data.
- **Design and Analysis of Experiments (E) and Factorial Surveys (FS) Designs:** Focus on real-world applications of experimental and factorial survey designs for various backgrounds, such as the research and development activities required for successful and sustainable

technology commercialization and product realization, the research of individual decision-making, and evaluating principles, among others. A project would consist of a small-scale study that includes each stage of the process, from initial ideas to practical steps required when developing E and FS projects, as well as implementation (or reflection) of innovative statistical tools and techniques for E and FS data analysis.

Teaching approach

Independent study with supervision. There are regular meetings between the student and the lecturer to discuss the topics.

Hours and period

Depends on the material. Typically it is 2-4 hours per week in 14 weeks.

ECTS

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Grading

7-point grading scale