**Master Thesis Project**

**English title: Assessing the Reliability of Live Audio Transcriptions in Financial Decision-Making.**

**Danish title: Kvalitetsmåling af live lydtransskriptioner til finansielle formål.**

**Name: Mark Hageman Welin**

**Periode** 03.02.2025-18.07.2025, ECTS 32.5

**Supervisors:** Sneha Das & Line Katrine Harder Clemmensen

**Description:**

This thesis is done in collaboration with Alipes and focuses on evaluating the accuracy of speech-to-text models by comparing transcribed conference call audio recordings with their ground truth transcripts. The project involves obtaining a dataset of audio recordings, applying speech-to-text models, and assessing the performance of these models. Additionally, the project may include time-annotating the transcripts, providing further insight into the alignment of transcriptions with the source material.

**Timeline:**

03.02.25-24.02.25 Find literature on the topic, as well as data sources for both the live audio and ground truth transcripts. Clean the data so it’s ready for transcription and research what tools are best suited for the task of transcription.

24.02.25 **Milestone:** Clean and organized dataset, ready to be transcribed with the method literature deems to be the best.

24.02.25-07.04.25 Build the pipeline to transcribe audio as if it was live, and save the transcriptions for the whole dataset. Start writing the introduction and methodology for data gathering for the report.

07.04.25 **Milestone:** Transcriptions for the whole dataset that from a quick look with the human eye looks fairly accurate.

07.04.25-12.05.25 Compare the transcriptions to ground truth with metrics used in current research. Come up with a metric that specifically focuses on the parts of the text relevant for financial decision-making. Write descriptions of each metric used in the report and make graphs to compare them.

12.05.25 **Milestone:** Detailed graphs that compare metrics as well as a custom metric that Alipes see the value in.

12.05.25-09.06.25 Look at extracting numerical data from the transcriptions and see if they can be displayed in a clean and easy to read manner. Look at commonalities between conference calls to see if the numbers are revealed at approximately the same time of each call. Add timestamps to transcribed data.

09.06.25: **Milestone:** Separate files for each conference call that includes numbers mentioned and some context indicator. Timestamped transcribed data.

09.06.25-25.06.25 Exploration of other ideas, maybe trying different transcription services, get data from real live streams, something else that comes up as the project progresses.

25.06.25-18.07.25 Full focus on writing the report.

Project meetings with all stakeholders will occur every 3 weeks. Meetings with company will happen as needed as I’ll be working at their office. Weekly group meetings with other MSc students and supervisors will happen every week, where individual help from supervisors can be found after said meeting if needed.

**Specific learning objectives:**

The student can

* Get experience building a pipeline for data collection and cleaning that a financial company can use.
* Learn about current state-of-the-art transcription models and their potential in different markets
* Get creative designing metrics for textual data evaluation

**General learning objectives:**

[**https://student.dtu.dk/en/programme-specifications/master-of-science-in-engineering/human-centered-artificial-intelligence**](https://student.dtu.dk/en/programme-specifications/master-of-science-in-engineering/human-centered-artificial-intelligence)

**In addition, the student**

* can identify and reflect on technical scientific issues and understand the interaction between the various components that make up an issue;
* can, on the basis of a clear academic profile, apply elements of current research at international level to develop ideas and solve problems;
* masters technical scientific methodologies, theories and tools, and has the capacity take a holistic view of and delimit a complex, open issue, see it in a broader academic and societal perspective and, on this basis, propose a variety of possible actions;
* can, via analysis and modelling, develop relevant models, systems and processes for solving technological problems;
* can communicate and mediate research-based knowledge both orally and in writing;
* is familiar with and can seek out leading international research within his/her specialist area;
* can work independently and reflect on own learning, academic development and specialization;
* masters technical problem-solving at a high level through project work, and has the capacity to work with and manage all phases of a project – including preparation of timetables, design, solution and documentation.