Report on the outcomes of a Short-Term Scientific Mission[1]

Action number: CA19130

Grantee name: Karel Kozmík

Details of the STSM

Title: Optimization of cryptocurrencies portfolios

Start and end date: 10/10/2022 to 31/10/2022

Description of the work carried out during the STSM

Description of the activities carried out during the STSM. Any deviations from the initial working plan shall also be described in this section.

(max. 500 words)

The original research topic was changed to the use of machine learning in energy portfolios and trading. The title is now "Energy trading in Day-ahead Market".

We have started a joint research project on Energy trading in Day-ahead Market with Prof. Wolfgang Karl Härdle, Dr. Alla Petukhina and M.Sc. Ilyas Agakishiev.

The project now studies the energy auctions in United Kingdom. There are 2 auctions in the day-ahead market, which can be used to generate profit – buying in the first auction and selling in the second and vice-versa. We use neural network to model the distribution of the auction prices and optimize trading strategy to generate profit.

- First version of the solution is already done
    - All codes are in Python in a GitHub repository
- Discussion with Awdesch Melzer and Gregor Dudek
    - About the current solution
    - Possible improvements
    - Challenges and important features
- Prepared an outline of the project for enhancements of the current solution
- Short presentation ready and already presented at the PRI seminar with Prof. Härdle

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Description of the STSM main achievements and planned follow-up activities

Description and assessment of whether the STSM achieved its planned goals and expected outcomes, including specific contribution to Action objective and deliverables, or publications resulting from the STSM. Agreed plans for future follow-up collaborations shall also be described in this section.

(max. 500 words)

The goals of the STSM were achieved, we started a research project and planned the future improvements and next steps.

Plans for future collaboration:

- Continue working on the project until it is successfully submitted and accepted in a journal
- Another visit in Berlin in the week 7.-11.11.2022 to give a talk at the Hochschule für Technik und Wirtschaft Berlin, University of Applied Sciences
- Presentation of results of ongoing research projects at the conferences and research events organised by COST FinAI members, for example STAT of ML (October, 2023, Prague).
- Contribute to P2P knowledge platform Quantinar, developed by collaboration of HU Berlin (Professor Härdle) and BUES.