

COST Action IC1205 on Computational Social Choice: STSM Report

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Host: Mathijs de Weerd

Host institution: Delft University of Technology

Host country: The Netherlands

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During my STSM on "Voting with Incomplete Preferences" I spent one week at Delft University of Technology. During this time I collaborated mainly with Mathijs de Weerd. In addition, I gave a seminar on "Mechanism Design with Pre-Commitment and its Application to Electric Vehicle Charging", which was very well attended and provided an opportunity to meet new people with interest in this area. I also met with people I knew, including Catholijn Jonker, Koen Hindriks, Matthijs Spaan and Reyhan Aydogan, thereby strengthening my collaboration with them. We discussed getting EU funding to enable future exchanges between our institutes. With Reyhan I discussed the voting project, and she gave valuable new insights and expressed interest in collaborating with the project in future.

In terms of the collaboration with Mathijs de Weerd, we have made very good progress on the project of voting with incomplete preferences. The initial aim was to produce an empirical study of different voting protocols in different domains, such as search engines and hotel rankings. We already started on the project before the visit by reading the relevant literature, discussing ideas and initiating the implementation of a platform for enabling this empirical study. During the visit we extended our literature search and further developed the platform and ideas. We found that the area of ranking aggregation from the information retrieval literature is closely related to our project, and some papers have also considered using voting protocols in this domain, e.g. to produce meta-search engines. In particular, the Text REtrieval Conference (TREC) has an annual information retrieval competition, where search results from different algorithms are evaluated by humans. During the visit, we extended the platform so that the data from this competition can be used to evaluate the voting protocols. We also implemented ranking aggregation algorithms from the IR literature, such as Spearman's footman rule. Different from previous work, our aim is to see the robustness of the aggregation protocols when preferences about candidates (i.e. websites included in the search results) are removed. Preliminary results show that optimising Spearman's footman rule provides the best results, closely followed by Borda voting. Other voting protocols perform surprisingly poorly. Future work consists of performing more elaborate experiments, designing new voting protocols, and including data from other domains (e.g. Tripadvisor).