The HI Social Guru: Leveraging automatically identified decision making moments during social interactions for better partner selection and collaboration

Project 2.10

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Project Overview

There are critical moments in social interactions contributing to a decision to collaborate with someone, e.g., whether to trust someone. To make such an assessment, an individual often needs to make inferences and judgements based on various types of perceived information about others (e.g., non-verbal behaviors such as facial expressions) given some specific context. However, is an individual accurate in making that assessment? Is their decision on who to collaborate with reflected by performance outcomes with their selected team member? Or are there tendencies to make sub-optimal social choices due to personal biases?

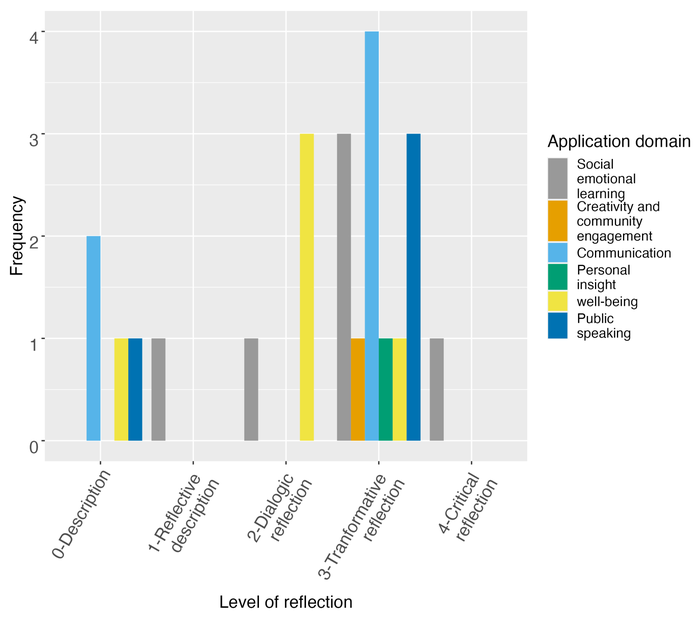
In order to develop HI systems that help humans to better understand and evaluate their social encounters, we combine multi-modal machine learning, computational cognitive modeling, and experiments (including existing data, e.g., project 04) to bridge the artificial perception and action loop by considering the idea of building a *HI Social Guru*.

The *HI Social Guru*, as we envision, supports the individual in social settings through understanding their goals (e.g., do they want to improve upon how they are viewed by others or vice versa; *goal setting*), communicating their individual tendencies in social behaviors and making inferences *enlightenment*, and providing strategies for them to engage in the conversations to afford new information about the others. In addition, the *HI Social Guru* assists humans in self-reflection in social settings without needing to interfere directly (synchronously) with the interaction.

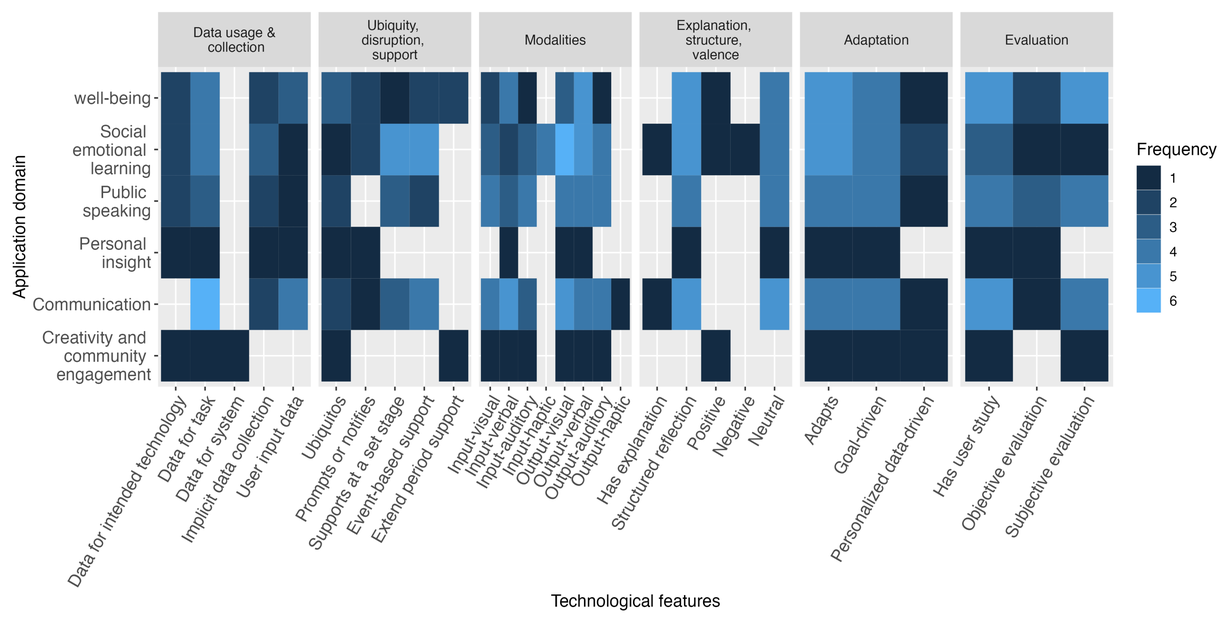
A Systematic Survey on Technologies Supporting Self-Reflection on Social Interactions

As intelligent technology and applications have become an integral part of nearly all aspects of people's daily lives, many intelligent systems have been designed to help people navigate the complex space of social interactions. One prominent strategy for such intelligent support is providing meaningful *Ad Hoc Interventions (ADI)*, e.g., through timely notifications. An alternative is *Technology-Supported Reflection (TSR)*, e.g., by offering information about activities in one's past for personal insights. In contrast to straight-up interventions, the aim of the latter strategy is not to directly augment human skills but instead support learning and personal growth over time. However, while TSR has seen widespread interest in applications in some areas, such as physical fitness and mental health, its use for improving human social interactions has not yet been systematically explored. Concretely, it is currently unclear 1) what forms of self-reflection systems intend to support, 2) how their different technological components (e.g., data collection, information integration) are involved in providing support, and 3) what common limitations and design challenges they face. In this article, we present the results of a systematic literature review focusing on these questions to provide a structured foundation for targeted research. Concretely, we identified and analysed a collection of 23 relevant papers, each describing a system deploying TSR to support humans with elements of social interactions.

We constructed a framework with a set of features to comprehensively describe and analyze the systems that support self-reflection, including their application domains, how they fit into the existing design framework, how they facilitate learning through reflection, how adaptive they are to individual users, and how they were evaluated. Finally, we propose a direction for designing systems that support individual's social interactions through self-reflection in an adaptive manner.



Number of systems in each application domain that support each level of reflection (N=23).



Heatmap of technological features realized by systems designed for each domain (N=23). Lighter color indicates *higher* frequency..

Hao, C., Hrkalovic, T. M., Balliet, D., Hung, H., Dudzik, B. (under review).