

# Building Systems to Capture, Measure, and Use Emotions and Personality

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Traditionally, personalisation (e.g., that in recommender systems) has been viewed as a “black box,” where machine-learning algorithms were designed and implemented to tailor content based solely on users’ feedback data. Recently, a number of themes have emerged that show how researchers are unboxing this metaphor in order to build more accurate and engaging personalised systems. For example, researchers are revisiting what data can be used beyond preferences (i.e., context-awareness) and how to best measure the quality of recommendations (beyond accuracy-based metrics).

In this keynote, I aim to open a discussion about how these recent trends in personalised systems are, in fact, related to accommodating for “people” rather than “users,” and how this may lead towards systems that solicit, use, and augment personalised experiences with representations of emotion and personality. In doing so, systems progress from representing ‘user’ data as a set of preferences towards capturing our states and traits.

Starting from an experiment I conducted that aimed to measure perceived quality of diverse recommendations [1], but also inadvertently angered some participants; I will briefly overview how emotions are starting to be used in this domain, and how they draw and build from the psychology literature. However, a number of research challenges emerge. These challenges encompass two key questions: how do we appropriately collect data about people’s emotions? Moreover, how should this data be used?

Recently, we deployed a system [2] to measure people’s emotions and learn how they relate to smartphone usage and sensor data. In a preliminary study [3], we found that the method we used to collect representations of emotions could influence what we inferred about people’s emotional states. How can future systems avoid this bias?

In on going work, we are investigating how collaborative filtering (CF) may be augmented to use personality information. Much like context-aware CF, it is not immediately clear how to merge preference and personality or, indeed, whether doing so in any way will improve recommendations. I will discuss some progress, difficulties, and opportunities, and we can close by discussing how the research community can tackle them.

## References

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