

# A Fuzzy-Based User Privacy Framework and Recommender System: Case of a Platform for Political Participation

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When entering a new era of digital societies, a vast number of digital footprints left by users becomes a new source of the economic good. A heavy exploitation of Big data, artificial intelligence, cognitive computing, amongst others, makes the data more valuable implying that the risk to people's privacy will be ever-increasing. Especially, when their privacy decisions are confronted with various trade-offs while using online services. Then, it becomes problematic to precisely express privacy preferences and estimate the potential risks of one's disclosure behaviour, which might lead to an uncertainty in privacy decision making. Moreover, depending on personal and contextual motives, privacy behaviour in particular situations differs from individual to individual, thus creating a personalised need for privacy.

This thesis presents a privacy profile framework designed for the platform for political participation which allows both to measure the citizens' privacy preferences and model their privacy profiles using fuzzy clustering techniques. By applying Fuzzy C-means (FCM) and Partitioning Around Medoids (PAM) algorithms, fuzzy privacy profiles are used in the architecture of privacy settings recommender system. Additionally, two user-centric evaluations were performed to estimate people's perceptions of the privacy settings recommendations. The results demonstrated that the adoption of the privacy settings recommendations depends on the personal characteristics of citizens, as well as indicated an existence of the inconsistent privacy behaviour.

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