



# Service Curation Framework for Context-Aware Personalized Recommendations

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**Abstract**— Self-quantification has gained a lot of traction in wellness-savvy individuals. A huge number of systems are introduced in order to meet this demand. The core features of most of these systems consist of self-tracking, self-quantification, and raw sensory data based self-monitoring. Such powerful features provide users an enhanced awareness about their quotidian activities in a consistent and timely manner. As an extension, we propose a comprehensive system which is capable to actively induce healthy behavior in users by providing accurate, context-aware and timely recommendations by processing user's contextual information. A novel methodology is proposed for acquiring, processing and interpreting context-aware personalized recommendations.

**Keywords**—context-aware; personalized; recommendation;

## I. INTRODUCTION

The current advancements in systems for personalized healthcare and wellness monitoring have created a new market for wellness savvy individuals. These systems can monitor a person's daily activities, eating habits and can provide goal-based recommendations. Although the data which is generated by a user is efficiently processed for generating a recommendation however these systems fall short of inducing healthy habits in users due to their inability to account for contextual information. Previously, we proposed Mining Minds framework for personalized healthcare and wellness support. It utilizes expert knowledge and contextual nuggets of information for providing personalized recommendations. The proposed system provides both physical activity and nutrition-based food recommendations.

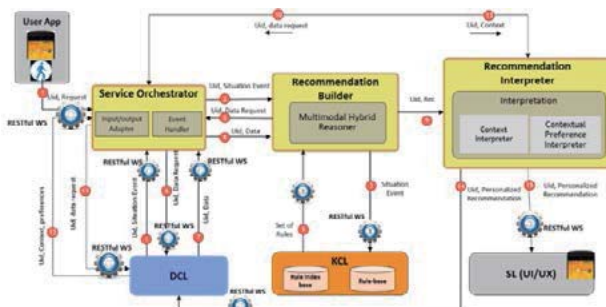


Figure 1: Service curation framework for context-aware personalized recommendation

## II. PROPOSED METHODOLOGY

The high level architecture of the proposed system is depicted in Fig. 1.

**Service Orchestrator (SO)** serves as the gateway to SCF. Data is collected from wearable sensors including smart phone and subsequently curated and stored with a logical division of user profile data, contextual data, and environmental data.

**Recommendation Builder (RB)** component performs inferences over rules stores in the knowledge base, user profile data and physical activity base to generate initial level of recommendations.

**Recommendation Interpreter (RI)** in Fig. 1, gets the initial recommendation built by recommendation builder component and interprets it contextually. In order to achieve this task a comprehensive survey is conducted in which physical activity based preferences are collected from a diverse population set. For example RI decides whether a user can be interrupted for performing a physical activity (e.g. running) based on the user's contextual information (e.g. location/office) or not. Moreover it is also analyzed whether the generated recommendation (by RB) is contextually suitable for the user or not (e.g. recommended running outside while it is raining). And if possible to provide with a more amenable alternative recommendation.

Context-aware personalized recommendation is the key contribution of the proposed system.

## III. CONCLUSION

Service curation framework is designed to coordinate services for providing personalized recommendations. This work is carried out as a part of Mining Minds project which is a comprehensive digital framework for health and wellness services.

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