"The Crowd Keeps Me in Shape": Psychology and the Past, Present and Future of Health Social Machines

Authors
Web and Internet Science Group
University of Southampton
Southampton, UK
{a,b,c,d,wh,nrs}@ecs.soton.ac.uk

ABSTRACT
Health social machines ...

1. INTRODUCTION

Health and well-being are visible indicators of human technological progress, as advances in healthcare and medicine are invariably reflected in increases in average lifespan, reduction of disease and suffering, and shortening of time needed to recover from illness and injury. As such, it is natural to ask how and whether the Internet and the Web, two of the most significant inventions in recent human history, have or may have an effect on health and wellbeing.

In this position paper, we examine a specific class of systems enabled by the Web and pervasive Internet-enabled systems, which we call *health social machines*. We define health social machines to encompass a broad class of systems that provide technologically-mediated interaction of large groups of individuals, typically via a website, app, and sensor-based online community. Individuals usually communicate and interact, directly or indirectly, through some mediated or moderation mechanisms, in order to collectively accomplish or address a health-related problem or need. Such problems, as we illustrate through examples we provide later, may be on the scale of an individual's disease or well-being management, to that of contributing evidence and insight to fundamental questions at the frontier of modern medicine.

We first describe the emerging landscape of health-related social machines, identifying sets of classes and characteristics such machines typically exhibit. We then focus on specific challenges faced by these classes in the longer term, and how emerging insights from behavioural ecnonomics and technological platforms may address some of these needs.

2. HEALTH SOCIAL MACHINES: A CLASSIFICATORY ANALYSIS

We identified three main objectives of extant, health-related social machines: *behavioural intervention*, *disease management*, and *disease understanding/medical science*.

The first which we refer to as "behavioural intervention social machines" are systems that seek to help individuals achieve health goals by changing their behaviour. Looking purely at Web and device startups, the majority of systems in this space seem to be "fitness social machines", *preventative wellness* systems that seek to help individuals increase their fitness by either increasing their general activity levels, or by setting specific strength and fitness goals. But other systems include *disease management*, to help seeking to increase people's levels of physical activity, for example, in order to increase reduce likelihood of the later onset of conditions associated

Preventative wellness
Disease management
Alzconnected (Alzeheimer's patients)

Table 1: Consolidated constructs of social machines.

2.1 Social pressure and Motivation: Gym Memberships and Personal Trainers

2.2 Present: Channel factors, access, convenience

2.3 Present: Salience and reminders

2.4 Futures: Personalised Activity Diaries

2.5 Futures: Citizen-medicine

3. ACKNOWLEDGMENTS