1.

**The Effects of Mobile Application Usage on Sleep Quality**

Just before falling asleep, people often use smart phones to read/watch media, social network, or plan the next day. The effects of this behavior on perceived sleep quality, sleep, and actual quality are largely unknown. The idea is to use sleep tracking wearable devices to monitor user sleep cycles after using a smart phone to conduct different activities, e.g. gaming, stalking, reading.

Relevant Work:

**Falling Asleep with Angry Birds, Facebook and Kindle – Bohmer 2011**

Despite the naming, the paper is actually a large-scale study that logged multi-device usage/frequency throughout the day, information that will be helpful in predicting nighttime behavior for my proposal.

2.

**Walking and Texting: Natural Selection in Contemporary Times**

The walk-‘n-text, according to CNN, results in an astounding 80 serious injuries every year in America. This study seeks to isolate the physical, visual, and mental complications that arise when people walk and text in an urban setting.

Relevant Work:

**Getting Off the Treadmill: evaluating walking user interfaces for mobile devices – Kane 2008**

This paper performed two studies evaluating the feasibility of walking user interfaces (WUIs) that adapt their layout when the user is moving; the complications and successes of these WUI’s will give insight to the wider array of complications/factors.

3.

**Do Smart Workspaces Improve Team Moral and Mutual-liking?**

Much research has been done on ubicomp in the context of collaborative workspaces. But after a day of working together in this multimedia way, how does the team actually feel – both about themselves and about each other? This paper will explore the effect of different permutations of collaborative tools, on overall team sentiments.

Relevant Work:

**Modeling Human-Computer Interaction in Smart Spaces: Existing and Emerging Techniques – Dahl 2008**

This paper gives a robust list of tools in smart spaces + how they are used; these ideas can then be applied to simulate a smart working environment for my study.

4.

**Why Aren’t My Mobile Shopping Sites Pink and Sparkly?**

Gender targeting in mobile application design is not as apparent as in industries like toy and fashion design. Whether this is true and what the exact differences between apps for men and women entail is the subject of this study. To narrow the scope, we can examine particular e-commerce websites, since they tend to be more gender biased and incentivized to do good design.

Relevant source:

**HCI Design Patterns for Mobile Applications Applied to Cultural Environments - Gallud**

This paper uses location awareness techniques to draw insights on mobile designs for that specific area; design insights based on populations by cultural/geographic distince will inevitably be extendable to that of gender.

5.

**Stress as a Factor of the Screen Size You Use to Do Work**

While much research has been done on productivity and screen size, a correlation may arise from working on different screen size to the level of stress and anxiety felt by users. A positive correlation may indicate there may be other means of achieving productivity through device/app design than by just size (through an app that induces stress on purpose, for example).

Related Work:

**Productivity and Screen size – Nielson 2006**

I can definitely draw inspiration from the design of this experiment and the measurement techniques, though instead of measure time lapse, I will be measuring stress levels as monitored by a wearable device.

6.

**The Need for Device Display to Span Context-to-Context in the Modern Office Space**

Ubiquitous computing assumes benefit that come from extending device display from one room to another - as the average worker moves throughout the day. This proposal examines the average number of rooms and devices involved in a product manager’s (extreme user) daily work life, and the frequency that he/she switches from one display/form factor to another.

Relevant source:

**Pedestrian Localization for Indoor Environments – Woodman 2008**

This paper discusses how a foot-mounted inertial unit, a detailed building model, and a particle filter can be combined to provide absolute positioning; this technology can be used to remotely monitor users for my proposed study, as it is cheaply and easily installed.

7.

**The Human Hand as an Effective Feedback Device (when used as input)**

Various Kinect projects allow users to “type” by touching fingers to other fingers as the main input method. I propose that the body is an effective feedback tool, because it senses the immediate environment better than any onscreen text. This paper will explore the effectiveness of providing haptic feedback (via fingers) as users navigate a complex application (UI designed to confuse them).

Relevant work:

**The Human Body as a Touch Screen Replacement – Nielson 2013**

This paper experiments with speed improvements when using different parts of the body, e.g. ears, arms, and palms, to accomplish various typing tasks on a smart phone; its hand-as-input set of rules can be applied to my proposed experiment.

8.

**The Impact of Digital Devices on Family Proximity**

Based on another paper above and the following, we can cross-reference family distribution in a household and their use of digital devices. How much time do families spend apart (out of eye-site, while still in the same house), and how much of that time is a direct result of digital distraction? Do any ubicomp instances then bring the family back together for a shared activity?

Relevant source:

**Accurate activity recognition in a home setting – Kasteren 2008**

The experimenters in this paper installed a sensor system capable of automatically recognizing activities and studied its impacts on family dynamics.

9.

**How Users Subconsciously Respond to Gestural UI**

This study aims to distill some subconscious gestures, facial movements, and general behavior changes when users receive restrictions and system statuses from interactive applications. Detecting these human-behavioral quirks can give insights to design “smarter” more “emotional” computing, e.g. a copy machine that knows when you are confused and gives more direction as a response.

Relevant source:

**The Three-Dimensional User Interface - WenJun 2008**

This paper extensively discusses the design principles of 3D UI, which is helpful upstream information for the design insights we want to distill further downstream the user case.

10.

**Design Principles from Learning to use the Kinect**

First time users of the Kinect go through a brief learning curve and soon learn respond to Kinect’s shortcomings with particular movements of the limbs. This process can be studied to draw insights on future design considerations that involve large-scale (entire body) interaction.

Relevant source:

**Kinect Gestural UI: First Impressions – Nielson 2010**

This paper touches on the usability weakness of the Kinect, weaknesses that I can pay particular attention toward when analyzing how first time users respond to their errors with the Kinect.