DESIGNING INTERACTIVE TOUCH-BASED MUSICAL INSTALLATIONS

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CERTIFICATE OF ORIGINAL AUTHORSHIP

I certify that the work in this thesis has not previously been submitted for a degree. I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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i. Abstract

This thesis presents practice-based research regarding the creation of *The Plants,* an interactive touch-based musical installation. Participants interact with a large scale 'instrument' that is activated when a participant's skin touches living plants. A pilot study examining participants' experiences of the interactive exhibition *In Touch* is also discussed. This research was conducted 'in the wild' as part of public installations.

In Touch and *The Plants* utilise capacitive touch sensors to trigger sounds stored on microcontrollers (Arduino etc.) or single board computers (Raspberry Pi). Two distinct sensors were used as the point of contact for the audience namely conductive paint (*In Touch)* and various plants (*The Plants)*. This technology has been outlined in relation to the primary focus of this paper which is the discussion of audience participation and engagement.

Most research in this field is concerned with works for adults, this thesis argues that it is important to design work that considers children as engaged, active participants.

The audience studies described in this thesis led to a series of findings examining participants' experiences with the artworks. These include a common journey from observer to active participant. This concept has been investigated, and an engagement model has been outlined to illustrate this journey. Distinct modes of interaction have been outlined which include 'solo play' and 'collaborative play'. Within these modes participants engage in a variety of activities outlined in an engagement model. A series of design criteria related to this engagement model has been presented. Finally, these design criteria have been used to evaluate new works by the author.

Keywords: Interactive, Musical, Installation, Children
Stakeholders: Interaction Designers, Researchers, Artists.