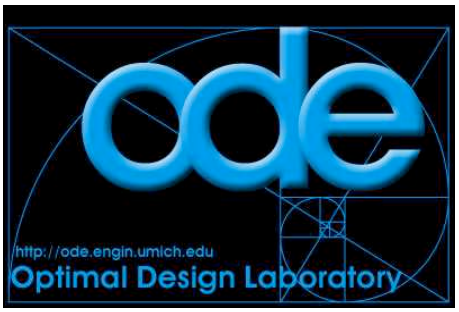
Rapport de Travail de Fin d'Etude
Master Degree Thesis



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ABSTRACT

Capturing Aesthetic Preference in Product Design

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Product design optimization usually does not take the user's aesthetic assessment into account because aesthetic preference is not well captured using today's tools. Several models have been developed that attempt to determine user preference but even if the user is directly asked about preference it is still a passive process. By using Interactive Genetic Algorithms (IGA), the methodology developed by Jarod Kelly, Ph.D. candidate at University of Michigan, allows a user to find his own "optimal product design" by going through an interactive survey that follows his preference assessments.

In this paper, the early steps of this new methodology are presented along with tests of the methodology alone and against the quadratic preference model, which is another preference tool. In this paper the early results of the study will be discussed along with the expected results of the full study. The following key steps of the study will also be presented.

Keywords: Interactive Genetic Algorithm (IGA), Aesthetic, Product Design, Quadratic Preference Model, Preference modeling, Optimal Design.

INTRODUCTION

Work towards the attainment of my master degree was conducted during a final internship from April 10th to September 8th 2006 at the Optimal Design Laboratory (ODE), University of Michigan under the supervision of Panos Y. Papalambros. It constituted the final work of my study in engineering at the Ecole Centrale Nantes, major: Product Design & Industrial Systems Development and minor: Industrial Design, Marketing & Innovation. Jean-Francois Petiot, HDR/Associate Professor, responsible for the courses: Product Design and Industrial Systems and Industrial Design, Marketing and Innovation, was my advisor at Centrale Nantes on this project.

This work was done in association with Jarod Kelly, a Ph.D. student at UM, on the project entitled: 'Visual Aesthetic Preference Assessment in Optimal Product Design'.

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