



Embedded Intelligent Empathy in Design

Project Team:

The project team is led by Dr Anna Chatzimichali from the University of the West of England. The full team comprises of Dr Merate Barakat (UWE), Dr Yahya Lavaf Pour (UWE), Dr Ying Liu (Cardiff University) and Dr Mirian Calvo (Lancaster University), including their industry collaborators Rheon Labs, Bonnie Binary and Vasthu. The project will commence in September 2020 and will take 12 months to complete.

What does the project demonstrate?

The goal of this project is to model empathy and systematically integrate it in computational design. Can a computer algorithm substitute a human designer? An algorithm can automatically generate form, but where does human empathy sit within this design process?

Computational design, the application of algorithms in the design process, was first adopted by designers to find optimal solutions and new artistic expression. In the last ten years, generative decision-aiding tools have matured from research hypotheses to wide use in practice. Contrary to traditional design processes, the use of intelligent systems relies on embedded mathematical and theoretical biological models that cannot be manually computed. There is a large body of research that argues that computational design is a superior process that generates innovative design solutions.

One of the key challenges in the digital age is creating products that trigger emotional connections. Empathy is the capacity to create an emotional connection. As an extrapolation, this project considers a designer's empathy as a non-quantifiable design skill that goes beyond intellectual knowing. Empathy is currently included in the design process at the rationalisation stage, where designers use their intuition to make rational design decisions. This method has no definitive articulation because every designer's empathy is derived from their professional training and personal experiences and is therefore bypassed by the systematic approach of computational design.

The design community has long criticised the generative design process due to the dominance of the algorithm. It is widely considered that the process does not allow for the designer's empathy, or rather it approaches empathy as a consideration to be added at a different stage. The argument is that the computational design has a heavier emphasis on optimisation and algorithms, reducing the interventions of designers' rational, and hence empathy.

This work considers the recent criticism regarding computational design, ignoring the empathy of the designer, valid. However, the argument set forth in this project debates that empathy could be more systematically integrated into computational design, rather than being disjointed. Current technology has the ability to quantify the ephemeral qualities that create rich designs and incorporate these qualities into an intelligent system. If this hypothesis is realised, the logical nexus will converge into a unique generative computational design process; i.e. systematically embedding empathy into intelligent systems.

