Droplet Lamp Design

Exhibition at EuroMold
Frankfurt, Germany 27. - 30. November 2011
This paper describes experiments in the use of digital fluid simulation techniques within a product design context. It discusses the adoption and adaptation of virtual modelling tools in 3D creative practice. This work is exhibited at EuroMold, the world-wide fair in Germany for mold making, tooling, design and application development with around 60,000 visitors and lasts 4 days. The fair brings together professionals from design, prototyping and manufacturing.

The droplet lamp series uses the complex and random behaviour of water to produce design variations within preselected boundaries. In order to use water parameters for design iterations, various computational simulation tools developed for diverse industries such as animation, cinema graphics and engineering are initially evaluated. In cinema graphics, methods for the animation and rendering of natural phenomena, such as water, are increasingly popular but requires detail, photo realism and sophistication to meet the demand of leisure industries. In engineering advanced 3D computational fluid dynamics (CFD) software provide prediction and virtual prototyping of liquid behaviour, fluid flow simulation and thermal simulation.
Techniques for the animation and rendering of natural phenomena developed for the film and game industries offer significant potential as 3D tools for other research areas. Although the ability to create 3D water simulations is now common in films and television, using these tools to generate design iterations of product development used in this study is unique.

The exhibition was a great experience and very successful with a lot of interest not only in the design but also the processes and future direction. The author would like to thank Dr Lionel Dean for his contribution to the project. We also thank EuroMold team for organising such a big event.

Dr Ertu Unver, University of Huddersfield, School of Art, Design and Architecture, Department of Architecture and 3D, HD1 3DH, Huddersfield, UK