

Chapter 15

Criteria for the Creation of Aesthetic Images for Human– Computer Interfaces: A Survey for Computer Scientists

Gabriele Peters
FernUniversität in Hagen, Germany

ABSTRACT

Interaction in modern human-computer interfaces is most intuitively initiated in an image-based way. Often images are the key components of an interface. However, too frequently, interfaces are still designed by computer scientists with no explicit education in the aesthetic design of interfaces and images. This article develops a well-defined system of criteria for the aesthetic design of images, motivated by principles of visual information processing by the human brain and by considerations of the visual arts. This theoretic disquisition establishes a framework for the evaluation of images in terms of aesthetics and it serves as a guideline for interface designers by giving them a collection of criteria at hand; how to deal with images in terms of aesthetics for the purpose of developing better user interfaces. The proposed criteria are exemplified by an analysis of the images of the web interfaces of four well known museums.

1. INTRODUCTION

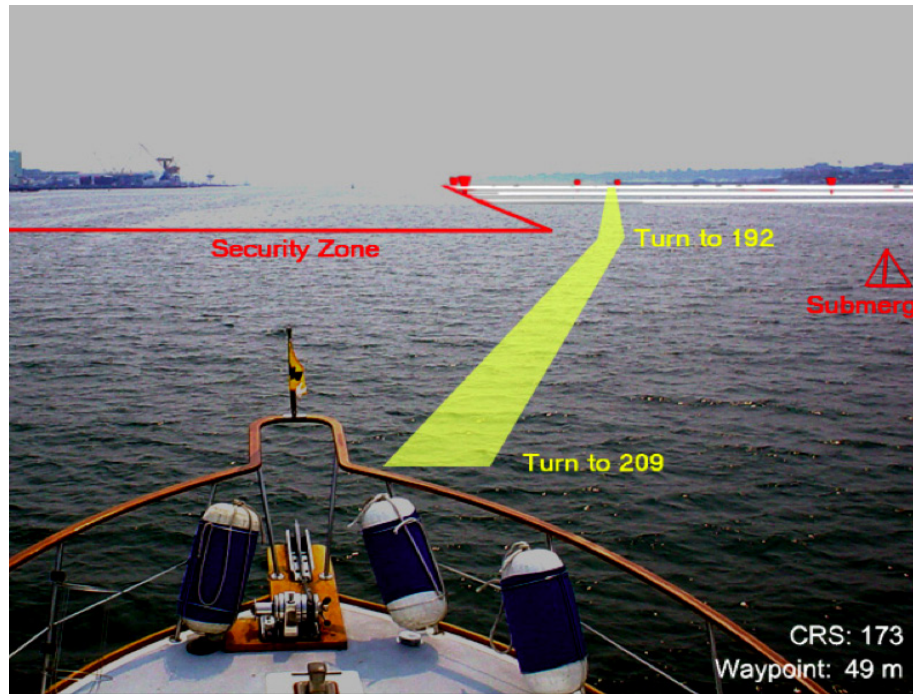
Images are often the key components of user interfaces. Examples of such interfaces from several applications of augmented reality (i.e., geovisualization, navigation, maintenance, mu-

seum guides, etc.) are shown in Figures 1 and 2. Figure 1 shows an image of the environment which is augmented by data indicating a possible path for a boat.

One could be of the opinion that such a real-time navigation system has to show “just the image the camera captures”. But the interface

DOI: 10.4018/978-1-4666-0285-4.ch015

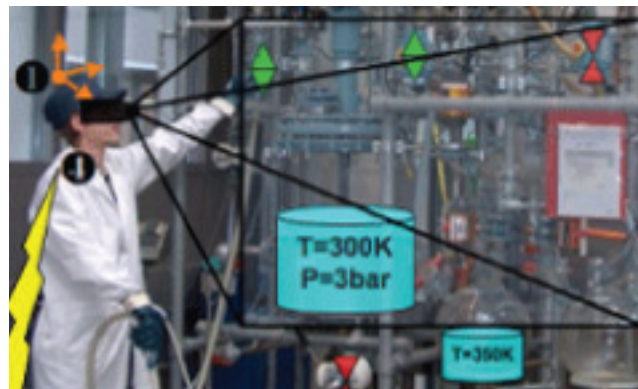
Figure 1. Images as key components of user interfaces: navigation (Adapted from WisdomTools LLC, 2009)



designer has to decide for the specification of numerous variables that determine how the captured image is presented in the user interface. To name but a few, she has to choose color space, contrast, dynamic range, spatial arrangement of the image components (e.g., the position of the horizon), depth of field, and focal length. Figure

2 shows an example for maintenance instructions for an engine. The previous statements hold true for this example, as well. Even in a case where *some* parameters of an image are user-controlled - as is the case for the maintenance example, where the viewing direction is user-controlled - the interface designer still has to control other image

Figure 2. Images as key components of user interfaces: maintenance (Adapted from Ecole Polytechnique Federale de Lausanne, Automatic Control Laboratory, 2011)



29 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:
www.igi-global.com/chapter/criteria-creation-aesthetic-images-human/64056

Related Content

Digitizing the Physical: Physicalizing the Digital

Joan Truckenbrod (2015). *Handbook of Research on Digital Media and Creative Technologies* (pp. 47-59).
www.irma-international.org/chapter/digitizing-the-physical/129307

Biological Translation: Virtual Code, Form, and Interactivity

Collin Hover (2012). *Biologically-Inspired Computing for the Arts: Scientific Data through Graphics* (pp. 149-160).
www.irma-international.org/chapter/biological-translation-virtual-code-form/65028

QR Coded 3D Prints of Cuneiform Tablets

Eleni Kotoula, Kiraz Goze Akoglu, Eckart Frahm and Stefan Simon (2017). *International Journal of Art, Culture and Design Technologies* (pp. 1-11).
www.irma-international.org/article/qr-coded-3d-prints-of-cuneiform-tablets/204434

The Inland Lighthouse: A Photographic Study and Interpretation of Place and Remembrance

Judith Martinez Estrada (2023). *Handbook of Research on the Relationship Between Autobiographical Memory and Photography* (pp. 82-107).
www.irma-international.org/chapter/the-inland-lighthouse/318912

The Forking Paths: An Interactive Cinema Experience

Bruno Mendes da Silva (2014). *International Journal of Creative Interfaces and Computer Graphics* (pp. 46-56).
www.irma-international.org/article/the-forking-paths/113784