Inspired by a new interest in the physicality of the artwork and our own work with tactile materials for visually impaired exhibition visitors, we propose the prolegomena for a new multisensory discipline, which we call **tactile photography**. It is based on the principles of stereoscopy and the computer-aided conversion of digital images into reliefs, which can be produced as real objects – on 3D-Printers for example. This new discipline can be especially interesting for visually impaired artists, but is not limited to “disability arts”. In this article, we want to show that **tactile photography** connects with a long-lasting interest in enhancing photography with the illusion of depth and physical space, which it shares with multi-photography, Andrew Davidhazy’s peripheral photography (developed in the 1960s), the Lumière Brothers’ photostereo synthesis, and with **photosculpture**. Yet, only the latter medium aims at translating photography into tactile sculptural forms. Invented in 1859 by the French sculptor and photographer François Willème, **photosculpture** is the adaption of photographic...
This work is owned by LETTER Stiftung, Cologne and will soon be published in detail. The piece is extensively documented in the Foundation’s records, which were kindly made available to the authors through the mediation of Uwe Schögl, Vienna. [http://www.letter-stiftung.de](http://www.letter-stiftung.de) (15.01.13).


8. Schmidt 2009 [reference 3], 120.


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8. Schmidt 2009 [reference 3], 120.


Stereoscopy is distinguished by its ability to capture not only colour but also encode the depth at every point, i.e., the plasticity, the surface. Nowadays, computer algorithms can extract this depth and form the basis of our approach. However, current algorithms are not perfect, as our experiments have pointed out: The captured scene has to be sufficiently textured. Single-coloured objects, over- and under-exposure, reflections and transparencies have to be avoided, and a high depth of field should be maintained to get good results.

According to the taxonomy we have established for tactile media, Tactile Photography would lie in the continuum between 2-dimensional and 3-dimensional media. We use the term 2.5D, borrowed from visual computing, to denote a bas-relief that raises every point above the...
VRVis (Zentrum für Virtual Reality und Visualisierung Forschungs GmbH) is Austria’s leading research company in the field of Visual Computing. Together with the Institute of Computer Graphics and Algorithms at the Vienna University of Technology and the Visualization Commission of the Austrian Academy of Science VRVis forms one of the largest computer graphics research groups in Europe. Project website: <http://www.vrvis.at/projects/running-projects/tactile-paintings> (15.01.13).


This last point could have been the first one mentioned, as the idea for tactile photography was born of our experience with tactile representations for museums, such as the Kunsthistorisches Museum in Vienna in the project Tactile Paintings, and the adaptation of exhibitions by ArteConTacto. Multi-sensory approaches in the field of photography include,
on the one hand, the conversion of photographs for a blind public and, on the other, the art produced by visually impaired photographers.

One example of the first group can be seen in James Patten’s attempts to directly convert brightness information into height using a laser to carve wood and artist Lisa J. Murphy’s *Tactile Mind Book*, a collection of erotic photographs created as touchable reliefs using a thermoform process. Perhaps the best known initiative is Alain Mikli and Yann Arthus-Bertrand’s joint exhibition *Touch and See*, where several examples of Arthus-Bertrand’s famous aerial photographs were converted into bas-relief largely based on brightness and then carved into cellulose acetate.

Photographic production by visually impaired artists has increased considerably in recent years and has even been shown in prominent museum exhibitions. In most cases, though, the photographs remain invisible to the image-maker, and the editing process is performed by a seeing person. According to Simon Hayhoe, this field of artistic production follows two major trends. The first has been developed by blind and visually impaired collectives, such as the *Seeing With Photography* collective, New York, or *Ojos Que Sienten* in Mexico, while the second form observed by Hayhoe is a more novice approach, mainly with school-aged students. Each of these students is given a simple camera without any adjustable parts and asked to take photographs of different elements of their everyday lives. Prominent examples are Tony Deifell’s organization *Seeing Beyond Sight*, founded in San Francisco in 2002, and Partho Bhowmick’s *Blind With Camera* in Mumbai, India. Both forms can be seen in the context of photography’s role as a medium for democratization and empowering socially weak groups.

The individual efforts of blind photographers are not mentioned by Hayhoe, but are noteworthy. The most prominent museum exhibition of the work of photographers with visual impairments to date was *Sight Unseen: International Photography by Blind Artists*, curated by Douglas McCulloh for the California Museum of Photography in 2009. It consisted of “111 photographs and 8 tactile illustrations” by 12 artists, mainly from the USA, but also from Mexico and France. In all of these cases, however, the artwork remains invisible to the visually impaired person, until edited and then converted by a seeing interpretation artist.

*Tactile Photography* should therefore help to include blind photographers in the editing phase and give them more control over the whole artistic process. But it should also give seeing photographers the possibility to experiment with a new medium, test its limits and “play against the apparatus”, to use Flusser’s famous words.

25. These tactile diagrams, which have been mounted in public spaces and museums, are based on the findings of Hoëlle Corvest from the Cité des Sciences et de l’Industrie in Paris, who has developed an image literacy program for people who were born blind.