Membrane or How to Produce Algorithmic Fiction

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Algorithmic Precedents in my Oeuvre

Membrane is an art installation to be exhibited in Berlin next spring. It builds on a series of generative video installations with real time video input. [1][2]

Fig 1. *Transits* 2012 [2] Damm, Screenprint

Membrane allows the viewer to interact directly with the generation of the image, as it was tested in Chromatographic Ballads. [3]

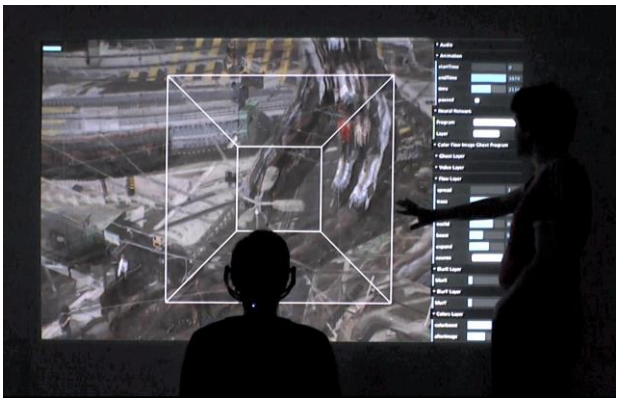

Fig 2. *Chromatographic Ballads [3], explaining the interface* 2013 Damm/Schneider

This setting allows to experience the 'imagination' of the computer according to curiosity and personal preferences. *Membrane* operates on images derived from a static video camera observing a street scene in Berlin. Our audience can interfere with the temporal alterations of the image by an interface.

Technical conception of *Membrane*

On a technical level, *Membrane* controls image "features" which are learnt, remembered and reassembled. The characteristics of the features are delegated to a neural network. TGANs (Temporal Generative Adversarial Nets) implement "unsupervised learning" through the opposing feedback effect of two subnetworks. A generator produces short sequences of images and a discriminator evaluates the artificially produced footage. [4]

Our algorithm allows us to "invent" images in a more radical manner than classical machine learning would allow. The installation shows images from unchanged street views to purely abstract images, based on the found features of the footage.

Fig 3. First animated video features for *Membrane* 2018 Damm/Serocka,

Algorithmic Fiction

The fictional potential of machine learning has become popular through Google's deep-dream algorithms. From an aesthetic perspective, these images look paranoid; they tail off in

formal details and reproduced previously found artefacts (through searching the internet).

From an artistic point of view, the question now arises, how can something original and new be created with algorithms? This is the question behind the software design of *Membrane*. Unlike Google's deep-dream algorithms and images, we don't want to identify something specific within the video footage (like people or cars). Our software exposes the visitors to intentionally vague features: edges, lines, colours, geometrical primitives, movement. Interestingly, the resulting images resemble pictorial developments of classical modernism (progressing abstraction on the basis of formal aspects) and repeat artistic styles like Pointilism, Cubism and Tachism in a uniquely unintentional way. These styles fragmented the perceived as part of the pictorial transformation into individual sensory impressions. Motifs are now becoming features of previously processed items and are successively losing their relation to reality. Are these fragmentations of cognition proceeding in an arbitrary way or are there other concepts of artistic abstraction and imagery ahead of us?

Cultural perspective

From a cultural perspective, we are questioning if the shift of the perspective from analysis to fiction can help to asses our analytical procedures in a different way – understanding them as normative examples of our societal fictions serving predominantly as a self-reinforcement of present structures? Thus, unbiased artistic navigation within the excess/surplus of normative options of actions might become a warrantor for novelty and the unseen.

References

1. Ursula Damm, 'Transits' (2012) accessed August 30, 2018, http://ursuladamm.de/transits-2012/.
2. Ursula Damm, '598' (2009) accessed August 30, 2018, http://ursuladamm.de/598/.
3. Ursula Damm, 'Chromatiographic Ballads' (2013) accessed August 30, 2018, http://ursuladamm.de/nco-neural-chromatographic-orchestra-2012/.
4. Masaki Saito, Eiichi Matsumoto, Shuta Saito, Temporal Generative Adversarial Nets, ICCV 2017, accessed august 30, 2018, https://pfnet-research.github.io/tgan/, https://arxiv.org/abs/1611.06624).

Biography

Ursula Damm has become known for her installations dealing with geometry and its social impact on public space. In 2016, *Turnstile*, a permanent interactive public artwork in Düsseldorf/Germany was inaugurated. Ursula Damm's works are shown worldwide in exhibitions and festivals.

Since 2008 she holds the chair of Media Environments at the Bauhaus-University Weimar/Germany, where she established a Performance Platform at the Digital Bauhaus Lab as well as a DIY Biolab.