

Das Fremde Robot Installation

Michael Spranger

Sony Computer Science Laboratories Inc., 3-14-13
Higashigotanda, Tokyo, Japan
Michael.spranger@gmail.com

Stéphane Noël

Artist and Curator
snoel@me.com

Abstract

We discuss a recent award winning Artificial Intelligence installation that deals with autonomous meaning creation in machines.

Installation

In a dimly lit space, a tribe of robots is busy. The members of this colony observe the world around them and try to describe it using a language they create in real time. Each identifies the elements in its vicinity, invents a word for it, and communicates that name to its counterparts. Together they create a language that the whole village can understand, and thus build the common culture of this artificial species.

Suddenly another species intervenes, disrupting the quiet atmosphere of this community. Humans enter the space. A person approaches, trying to grab the attention of the agents, which turn their camera-eyes and microphone-ears towards him or her. The visitor initiates a form of communication. The robots' culture is put to the test. How do the robots deal with the novel objects? Will the culture resist these external interventions, will it adapt its vocabulary and evolve, or will it simply vanish, to be replaced by a dominant human culture that is totally external and unknown to it?

Das Fremde immerses visitors as explorers who witness the birth of a language and the evolution of the culture of another, non-organic life form. The installation tries to capture the moment of discovery: the moment the audience turn into pioneers and ethnologists stumbling upon an emerging civilization.

Das Fremde is a performative installation featuring a species of artificially intelligent entities that create their own language and culture through a cultural evolutionary process.

The cultural identity of this micro-society faces foreign cultural elements - the visitors. Like any indigenous population gradually invaded by an outside population, its culture is forced to expand, to hybridize, withdraw or possibly surrender.

The installation integrates recent techniques in AI: deep learning, deep reinforcement



Fig 1: Installation in Zurich, CH (11/2016)

learning as well as more traditional methods such as rule-based approaches. [2] It serves as a showcase for the abilities of current systems to generate symbolic culture and autonomous meaning.

Concept and Discussion

Das Fremde is German and refers to something between the strange and the stranger – or both at the same time. We apply this concept for the installation in two ways.

On the one hand, *Das Fremde* examines the function of the foreign for the definition and self-construction of cultural identity. The robots see the visitors as foreign objects. Driven by curiosity or boredom, excitement and disinterest they interact with and about the visitors, which in turn shapes their culture and influences the

construal and conceptualization of reality. Concepts and words emerge about the visitors. Sights and sounds might be picked up, imitated and ultimately become frozen into concepts and cultural memory.

On the other hand, the installation is a foreign object to us the visitors. For us, especially in Europe there is a cultural stream of seeing machines as foreign entities. Separated from us humans by foreign codes, strange behaviors and exotic sights and sounds. The installation questions our relationship with machines and makes the divide directly experienceable. This is especially important at a time where machines and machine intelligence are part of a heated discourse. What it is like to be among machines, which do not assemble cars behind fenced off areas but instead seem to demonstrate a level of autonomy and independence that casts the human being in the role of outsider.

Das Fremde offers visitors the opportunity to immerse in a slow emotional process during which one can witness the birth of a language and the evolution of the culture of another, non-organic life form. We capture the poetic moment of discovery: the moment the audience turns into explorers and ethnologists stumbling upon an emerging civilization. Consequently, visual and sensory aspects of the installation are designed to favor an intimate encounter, rather than to overload the visitors with escalating effects and placatory discourse.

The installation follows in the footsteps and extends earlier artistic work at the interface between art and technology – such as *The Talking Heads Experiment*, conducted in the years 1999-2001 and recently published as a book. [1] This was the first large-scale experiment in which populations of embodied agents created for the first time ever a new shared vocabulary by playing language games about real world scenes in front of them. The agents could teleport to different physical sites in the world through the Internet. Sites, in Antwerp, Brussels, Paris, Tokyo, London, Cambridge and several other locations were linked into the network. Similarly, the *Ergo-Robots Experiment* by Pierre-Yves Oudeyer and collaborators investigated artificial curiosity and language formation in robots as part of the

exhibition “Mathematics: A Beautiful Elsewhere” at *Fondation Cartier pour l’Art Contemporain* Paris, France. Here robots were equipped with mechanisms that allow them to learn new skills and invent their own language. Endowed with artificial curiosity, they explore objects around them, as well as the effect their vocalizations produce on humans.

References

1. L. Steels, *The Talking Heads Experiment: Origins of Words and Meanings*, volume 1 of *Computational Models of Language Evolution*. (Berlin: Language Science Press, 2015).
2. M. Spranger, *The Evolution of Grounded Spatial Language* (Language Science Press, 2016).

Links

Website: <http://www.dasfremde.world>

Dossier: <https://tinyurl.com/y9p5j5by>

Biographies

Michael Spranger received a PhD from the Vrije Universiteit in Brussels (Belgium) in 2011 (in Artificial Intelligence). He currently holds a research position at Sony CSL Inc. Tokyo Japan. Michael has published more than 60 peer-reviewed papers on AI, developmental robotics and computational linguistics. Michael has been producing various art works reflecting on the nature of Artificial Intelligence and our relationship with machines: including robot installations such as *Confident Machines* (2011), *Das Fremde* (2016). He was also a technical advisor for the opera *Casparo* (2011).

Stéphane Noël served as director of *Les Urbaines* festival in Lausanne (1997-1998), and as co-director of *Belluard* festival in Fribourg (2004–2007). He has been on the artistic and editorial board of *Gaîté lyrique* in Paris (2009–2011) and acted as an advisor for *European.Lab*. Stéphane Noël’s artistic work ranges from screenwriter to media artist. *Das Fremde* is an attempt at developing aesthetics concepts around artificial intelligence and humanism.