Press announcement

Biennale Architettura Venezia 2025
www.labiennale.org/en/architecture/2025

AM I A STRANGE LOOP?
Takashi Ikegami & Luc Steels

The Venice Architecture Biennale runs this year from May 10 to November 23, 2025. As every year, the central exhibition is held in the monumental Arsenale (Corderie) building in the Castello quarter of Venice. The exhibition is entitled 'A Space for Ideas' and elaborates the general theme of the Biennale, which is 'Intelligence. Natural, Artificial, Collective'. Ratti emphasizes that the world has found itself in a precarious situation due to climate change and that our society, and therefore also the way we build and organize space, must use all forms of intelligence to deal with this crisis.

Among the selected participants are *Takashi Ikegami* and *Luc Steels.* They are presenting an art-science installation entitled AM I A STRANGE LOOP? The work has three aspects that are closely related to the spirit of this Biennale.

The first aspect concerns *Artificial Intelligence*, which is the first common thread of the exhibition. In recent years, revolutionary steps forward have been taken by new algorithms and the availability of immense amounts of data and computing power. Large Language Models, as used in ChatGPT, are examples of this trend and they are now known to the public. Ikegami and Steels have been pioneers in these developments for decades. The core of their installation is a physical android robot, called Alter3, developed by Ikegami's group at the University of Tokyo. The robot is very impressive because of its size and because of its way of moving, which is not at all streamlined but rather resembles the movements of a primal android creature. The robot is equipped with visual, auditory, and tactile sensors and motors for the movement of the torso, arms, hands, head, and face. It has the necessary AI systems in its brain to control a complex body and to express emotions. Moreover, thanks to a built-in Large Language Model and a dialogue system, the robot can enter a conversation with any visitor that comes along in spoken language.

The second aspect of the installation concerns the *livability of our world*. This ties in with the second common thread of this Biennale. Although the robot can have an open conversation about any topic, it will steer the conversation as much as possible towards the climate crisis, and especially how the visitors personally experience this crisis and how we can cope: How should we adapt by building or renovating differently, how should we change our economy and spatial planning? For example, if the visitor is a resident of Venice, the robot will broach the subject of the floods. They have now been mitigated by a storm barrier but will strike mercilessly again in the future due to more intense storms and rising sea levels. The Alter3 android acts here as a kind of oracle that summarizes the wisdom (but also the stupidity) of humanity, which it has learned from scanning enormous amounts of human text and images.

The third aspect of the installation investigates the deep question of whether AI-enhanced robots can ever have a form of *(self)-awareness*. For some, (self)-awareness is forever out of reach for artificial beings. For others, artificial awareness is necessary to introduce an ethical compass for AI, especially in the case of AI-enhanced android robots embedded in our daily lives. Here Steels and Ikegami base their explorations on an idea from Doug Hofstadter,

developed in his book 'I am a strange loop', namely that the 'I' creates itself via a kind of recursive loop. To provoke such a loop, the android's brain is extended with mechanisms to reflect on its own actions and on the dialogue with a visitor. The robot integrates these reflections as additional input to decide on the next step, and the results of that step are again integrated, and so on, in a recurrent recursive loop. This loop makes the robot's behavior and dialog more coherent and stable, but it still allows change to what the robot talks about, its inventory of movements, or its perspectives on issues such as the future of our world. The change is influenced by the interaction with people, the environment, and the topics covered in the conversation.

The Alter3 android installation can be seen live in the Arsenale and visitors can interact with the robot and form an idea how intelligent and convincing its reactions are and whether or not we see inklings of artificial (self-)awareness. The dialogues are conducted in English, Italian, Japanese, or Dutch and translated live (by an AI translation app of course). The production team consists of Takashi Ikegami, Guido Lucassen, John Smith, Luc Steels, Takahide Yoshida.

BIO TAKASHI IKEGAMI

Takashi Ikegami is a Japanese physicist, affiliated as full professor with the General Systems Department of the University of Tokyo. His research focuses on complex dynamic systems in biology, physics, and cognition. More specifically, he is a leading figure in the field of 'artificial life', which investigates how the origin and evolution of life can be studied synthetically in the laboratory. He uses both computer simulations and chemical systems in which properties of life emerge. In 2021, he received the 'Artificial Life lifetime achievement' award from the International Society for Artificial Life. It is the most important scientific award in this field. In addition to his scientific work, Takashi Ikegami is also very active as an artist through installations, videos, and operatic works, often in collaboration with other artists. His work with the Alter3 android has been shown at the Opera Garnier Paris (2017), Ars Electronica (2018), the Barbican Center in London (2019), 21st Century Museum of Contemporary Art (2023) and several other Japanese museums.
https://www.sacral.c.u-tokyo.ac.jp/project/art-projects

BIO LUC STEELS

Luc Steels is a Belgian scientist, best known for his scientific work in the field of artificial intelligence (AI). After his studies in AI at MIT under the supervision of Marvin Minsky, he founded one of the first European AI laboratories in Europe at the Free University of Brussels (VUB) in 1983. Steels is now emeritus professor at the VUB. He was also the founding director of the Sony Computer Science Laboratory in Paris, ICREA research professor at the Institute for Evolutionary Biology in Barcelona, and principal investigator at the Center for 'Living Technologies' of the Ca' Foscari University in Venice. Steels received the 'EURAI Distinguished Service Award' in 2022, the highest award for AI in Europe. He is a member of the Royal Flemish Academy of Science and the Arts (KVAB) and was until recently the chair for natural sciences.

In addition to his scientific work, Luc Steels also has a track record in various artistic domains, usually in collaboration with other artists. He wrote and produced two operas, Casparo and Fausto, which explore transhumanistic themes related to AI. They were performed at the Palau de la Musica (Barcelona), the Muntschouwburg (foyer), Theatre

Moliere (Brussels), La Gaîté Lyrique (Paris), Sony Concert Hall (Tokyo), and other venues. In the field of visual arts, he has collaborated with various artists, such as Anne-Mie Van Kerckhoven (including a duo exhibition at the Aachener Kunstverein), Olafur Eliasson (including for the Musée d'art Moderne in Paris) and Luc Tuymans (including in the BOZAR (Brussels) exhibition 'Secrets' in 2021). Steels has also created various solo art-science installations, including the Talking Heads Experiment shown at the Laboratorium exhibition curated by Hans-Ulrich Obrist and Barbara Vanderlinden in Antwerp (1999), with further installations in London, Cambridge, Paris, Brussels, Tokyo, and Amsterdam. https://en.wikipedia.org/wiki/Luc_Steels

Figure: Alter3 robot installed at the Venice Biennale 2025