Human in the loop

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Cie Nicole Seiler

Idea, concept :
Nicole Seiler

Performance, artistic
collaboration : Clara Delorme,
Gabriel Obergfell

IT programmation, artistic
collaboration :Tammara Leites

Artistic collaboration :
Nicolas Zlatoff

Composition :
Stéphane Vecchione

Light design, technical
direction : Jérôme Vernez

Sounds : Clive Jenkins

Costume design :
Ana Carina Romero Astorga

Administration :
Léonore Friedli

Co-production :
Cie Nicole Seiler
Arsenic Lausanne

What happens when artificial intelligence participates in the creation of a choreography?

Based on instructions generated by the AI before each showing that are discovered in real time by the dancers, the artistic process is revealed before our eyes as we witness an authentic laboratory of potential relationships between humans and artificial intelligence.

In a humorous and offbeat way *Human in the loop* confronts us with power dynamics and questions our own freedom within an oppressive, insidious, and absurd structure governed by algorithms.

Tour manager :
Ana Lagarrigue
+ 33 6 79 39 45 09
ana@nicoleseiler.com

Human in the loop

By Nicolas Zlatoff and Nicole Seiler

The stage is empty. It could be a laboratory for scientific experimentation, a little cold and bathed in white light, or a contemporary dance performance, very pure and unadorned, with a space of action marked out on the floor. To your right, three tables are lined up lengthwise on one side of the stage. You can see two computers, a light console, an audio console, and several keyboard or touch interfaces, as well as some other technical objects, all linked together by a series of cables in varying degrees of disorder. Three people are sitting behind the tables.

Two performers take their place in the right rear of the space, at the edge of the white rectangle that has been drawn on the floor. They are equipped with Bluetooth earbuds, through which they will receive the choreographic instructions for the performance. These instructions are generated before each show by artificial intelligence that has been trained by a series of choreographic descriptions. It is through this human-artificial intelligence collaboration that the performance is born. Thus, each night, a new performance is written, discovered and instantly interpreted on stage.

We do not see the AI on stage, but we hear it, at times directly via a synthetic and artificial voice, at others through the voice of the dancers who share the instructions they are receiving as they dance, and sometimes uniquely through a series of metallic and organic sounds, both abundant and abstract, like the partial manifestation of digital thought. This *thought* is unstable, just like all artificial intelligence. It is sometimes surprisingly coherent and inventive, and even poetic. Sometimes, you could say that it's simply "outside the box." But, in fact, where is the boundary between the ability to invent and the "outside the box"?

In any case, what we see is that the AI's instructions lead the dancers to go beyond their own framing. A piece of choreography that would habitually be incarnated and rehearsed is here created as if the movement emerged despite the dancers. The result of this

immediacy is a dance whose quality is at the same time surprising, unusual, and strange - a dance that spills over, a dance that is almost freakish. The performer must compose in this very singular ambiance: how to translate, make visible, and interpret an instruction? How to react if the instructions are incomprehensible? What to do if something the AI proposes is ethically or morally borderline?

Everything spills over in joyful transgression, including the light, which is also guided by the AI, and the sound, which sometimes becomes music, generated and triggered by the flow and rhythm of the synthetic voice. In a strict sense, the performers and the sound and light technicians are cyborgs, hybrid organisms between the machine and the living. Their organic bodies, inhabited by sensations and a sincere desire to dance, are connected to a machine without a body or internal organs. Where does the boundary begin and end between the humans and the machine? What status does the body we see moving on stage have? Is it an extension of the machine that produced a choreographic instruction or the biological body of the dancer who interprets the instruction by giving it an intention, an interpretation, or an emotion?

Human in the loop demonstrates how it is not really possible to know where the body ends and where the spirit begins in these cyborgs that "resolve into coding practises[1]." Could we consider that the performers remain two distinct bodies on stage even though they are linked to a single machine and execute the same instructions? When we see them move together, joined as one in the movement, would we not be tempted to believe that they in fact form a single cyborg body, with four hands, four legs, and two mouths that articulate fragments of different instructions?

Human in the loop postulates that it is not really possible to distinguish how much the human and how much the machine creates, or is created by the other, and imagines a framework of hybridisation and collaboration on stage. What results is a (or many) dance(s) (of) a cyborg(s), in which "we are not afraid of our joint kinship with machines, not afraid of permanently partial identities and contradictory standpoints[2]." It is a dance that would reflect a confusion of boundaries.

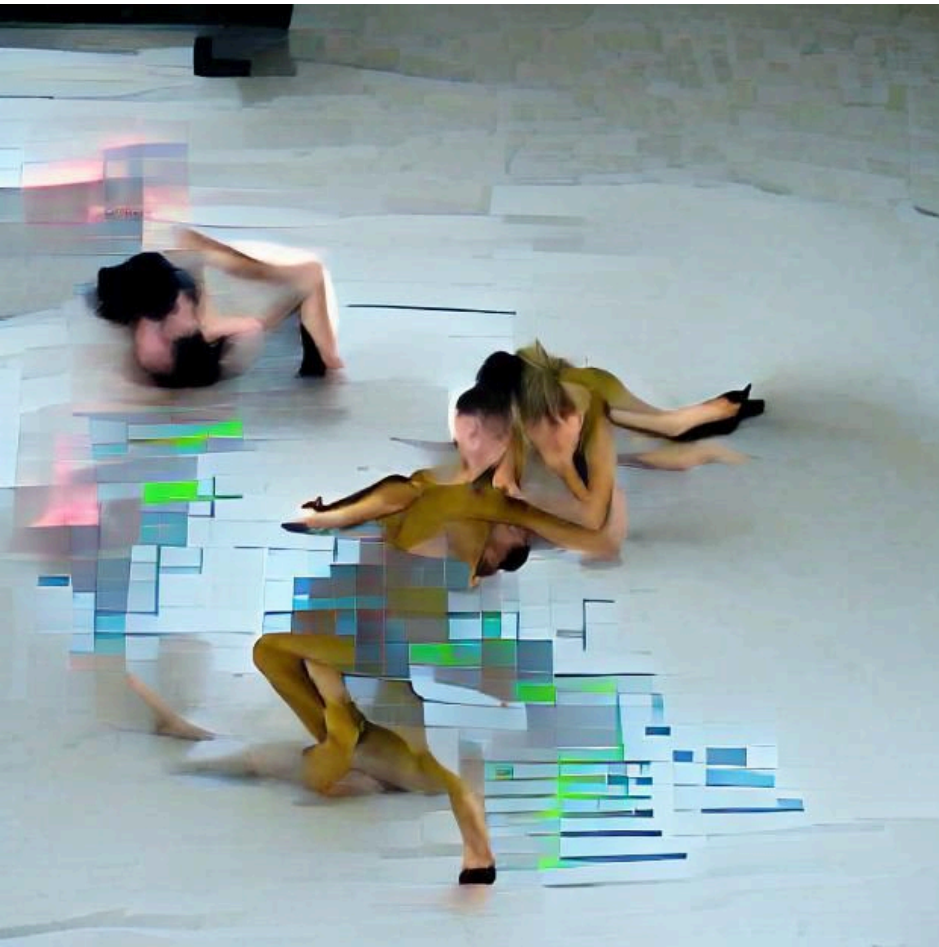[1] Dona Haraway, *A Cyborg Manifesto,* 1985
[2] Ibid.

Image generated by an IA from the following text: « Show for a dancer and an AI »

(…) Fair play, the framework imagined by Nicole Seiler, avoids a biased demonstration of human superiority while testing the limits of artificial thought via the stage. For this authentic performance of experimental dance, the rule is simple: each morning before the show, the choreographer enters a series of dramaturgical stipulations and key words – always the same – into the machine. (…)

Disjointed, fragmented, and individualised in the extreme, the gestures are mechanical, flat, and imprecise, executed hastily by dancers who are very committed but lack direction. The orders given by the machine - at times shared with the audience through speakers, while at others left a mystery through enigmatic gesticulations - provide a comic impulse in place of sensitive material. We find ourselves in the heart of human-in-the-loop, also known as HITL, a computer model in which human intervention – even reduced to a mere flesh and bone automaton – remains indispensable.

Agnès Dopff, Mouvement, 3 October 2023

(…). This experience reveals much about the importance of human beings in the creative process, even if their role may end up being transformed thanks to (or because of) technological developments. In brief, and to cite Nicole Seiler: "It's not so much a machine-based insurrection that we should be afraid of, but rather the insidious influence of tools we consider neutral, that reproduce untenable power structures."

In the end, Human in the loop *is a performance that opens up a great number of questions while suggesting avenues of reflection, making it a fairly successful research experiment. While its dramaturgical construction, its aesthetics and meticulous and demanding execution also make it a performance that is as troubling as it is entertaining, that arouses curiosity and the pleasure of sharing a moment with augmented humans.*

Quatrième Mur, Brice Torriani

Nicole Seiler

Born in 1970 in Zurich, Nicole Seiler trained in dance and theatre at the Scuola Teatro Dimitri in in Verscio (CH), at the Vlaamse Dansacademie in Bruges (B), and at Rudra Béjart in Lausanne (CH). As a performer, she has collaborated in numerous creations by Philippe Lizon, Omar Porras, Guilherme Botelho, Philippe Saire and Massimo Furlan in Switzerland and abroad.

Nicole Seiler created her company in 2002, and since 2004 it has been touring internationally. She has become a major figure on the Swisss contemporary dance scene and has created some thirty shows to date. Image, video and voice are of great formal importance in her artistic approach. Her research has led to innovative, singular projects in a multitude of formats: choreographic stage shows, videos and films, performances, installations and site specific work, that keep the spectator actively involved in the performance. In recent years, her reflection on the relationship between image and sound has focused on the description of movement, the exploration of dance language in relation to its spoken counterpart and the memory of movement from a historical or personal point of view. Finally, this led her to develop an interest in vocal work through which the body is being used as a whole.

In 2009 Nicole Seiler won the Prix Culturel Vaudois Danse from the Fondation Vau- doise pour la Culture, and in 2021 she was awarded the Prix Suisse des Arts de la Scène.

Nicole Seiler is regularly invited to teach, to give workshops and masterclasses and to participate in forums and symposiums around the world. In addition to her work as a choreographer, Nicole Seiler is also interested in cultural policy issues. Over the years she has been a member of juries and various committees of associations and boards of trustees such as Pro Helvetia - Swiss Arts Council, Danse Suisse, far° festival des arts vivants Nyon, SSA - Societe Suisse des Auteurs, etc. Since 2018 Nicole Seiler is co-programmer at ADN Danse Neuchâtel.