yōkobo

an object of sensitive presence

Dominique Deuff, Gentiane Venture, Isabelle Milleville-Pennel & Ioana Ocnarescu – March 23, 2023

• *robot* • *design* • *slow technology* • *presence* • *human-robot-human* • *data* • *relationship* • *speculative* • *exploration*

As part of a multidisciplinary research and a PhD project to strengthen the connection between retired couples living at home, we imagined and designed Yōkobo. It is a robot at the crossroads of a sensitive approach and a robotic trend that bridges the gap between humans (Human-Robot-Human Interactions field). As a theoretical contribution, Yōkobo is at the intersection of various concepts: behavioral objects, robjects, weak robotics, and slow technology.

Yōkobo is a trinket bowl placed in the entrance of homes. Its discreet presence expresses hospitality and celebrates small moments of everyday life, welcoming visitors and inhabitants of the house. The name comes from the contraction of "yōkoso" (welcome in Japanese) and "robot" (with French pronunciation). In addition to these functions, Yōkobo expresses the state of the home using data from connected IoT devices, combining various house parameters (such as temperature, air quality, etc.) to express the home's "mood" through its motions. Finally, Yōkobo used in tandem with house keys, can convey a trace, a message based on motion. And a trace is a memory of the partner's passage.

Yōkobo is resolutely innovative and disruptive. It does not sit within the lineage of the general vision of what robots are and what they can do:

- it is an object intended to be unobtrusive, stemming from ambient computing, while having an ongoing subtle presence. It does not make sounds, unlike voice assistants and the trend for using voice modality interaction. It *expresses* its environment only through motion and light.
- to move away from home's companion robots and the biases they can generate through facial representation, Yōkobo has neither an anthropomorphic shape nor can talk.
- Yōkobo is intended to be made of natural materials such as ceramic, wood, or wool to break with the idea of plastic, disposable, and toy robots, and to improve its integration in everyday home life.
- as a slow technology product, understanding and integrating Yōkobo into one's life takes time and requires accepting not having a clear, repetitive, and instantaneous response to an action. Its contribution is not measured in terms of efficiency and utility; it is the sum of different experiences with the product over time that creates the object's meaning and value. Getting to know Yōkobo's expressive motions is continuous and progressive. Yōkobo is an object that is understood through perception and touches the poetic sensibility of its users.

Yōkobo is a concept that puts people's relationships at the center. It does not impose itself to propose an exclusive Human-Object relationship. It reveals the presence of the other by expressing the last impermanent trace of the other's passage. It is an object of sensitive presence.

This work is the result of interdisciplinary research between roboticists, designers, and ergonomists. The navigation (directions and overlay) of this pan.able demonstrates the design and engineering processes, as well as the interaction modalities.

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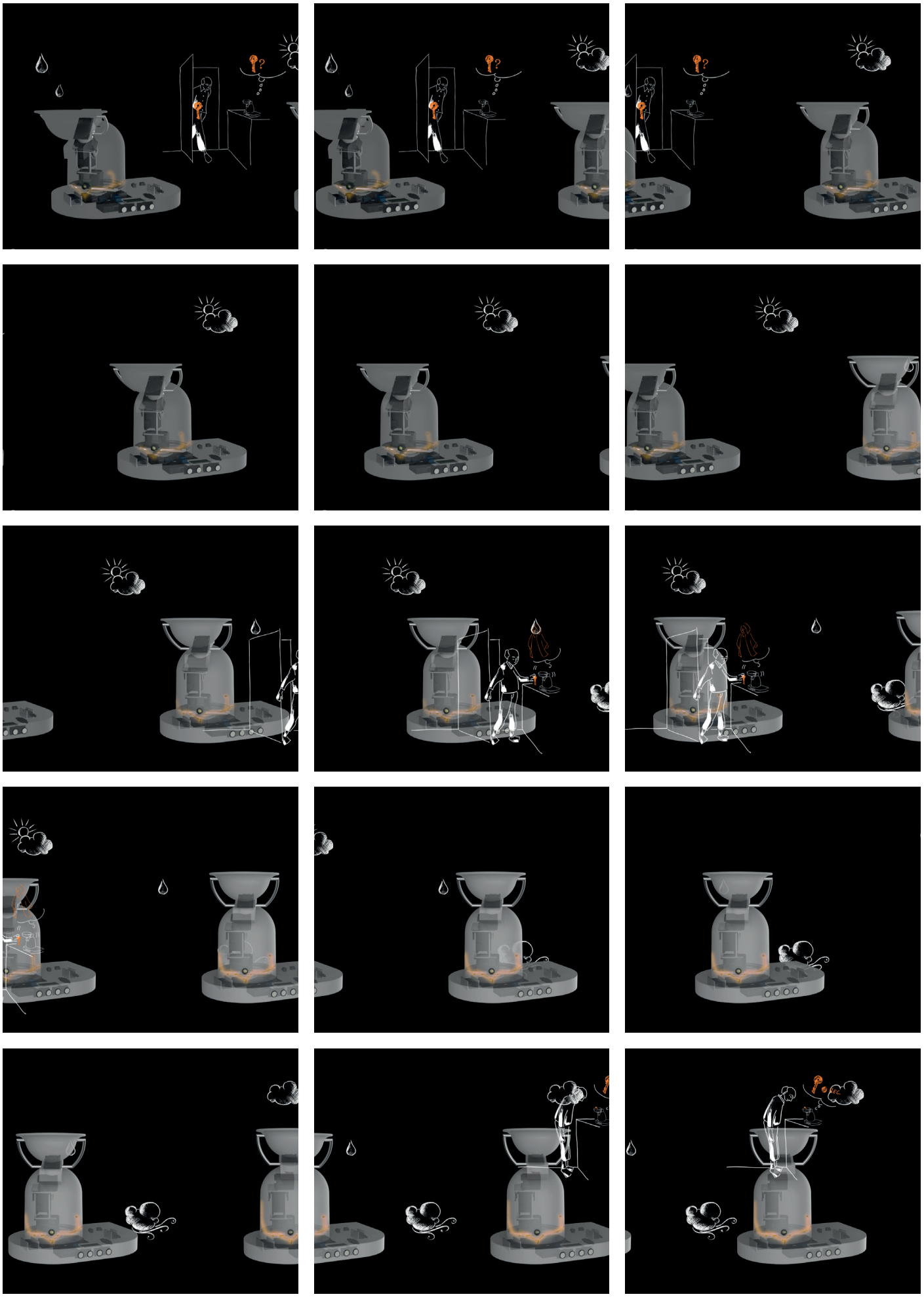

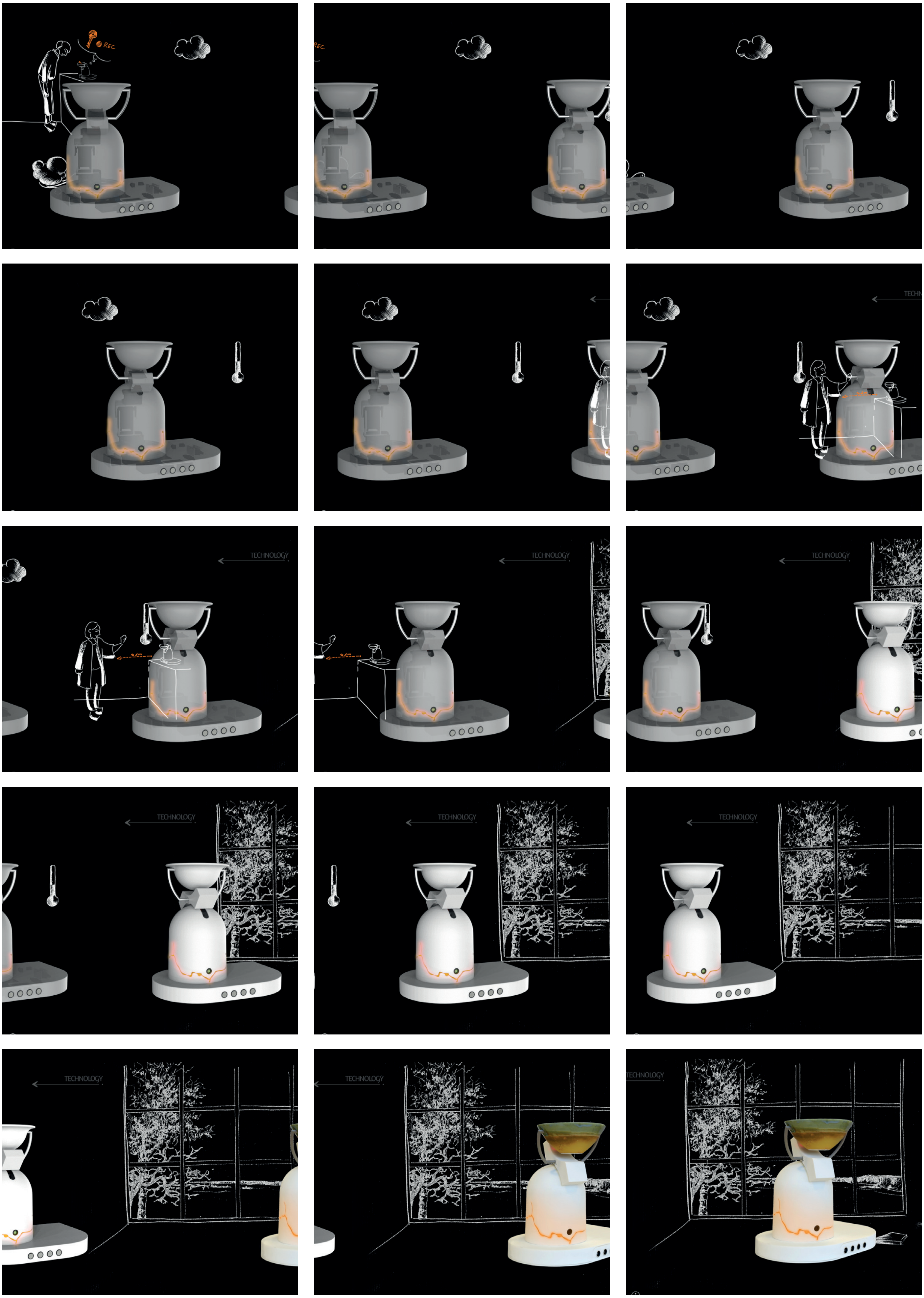
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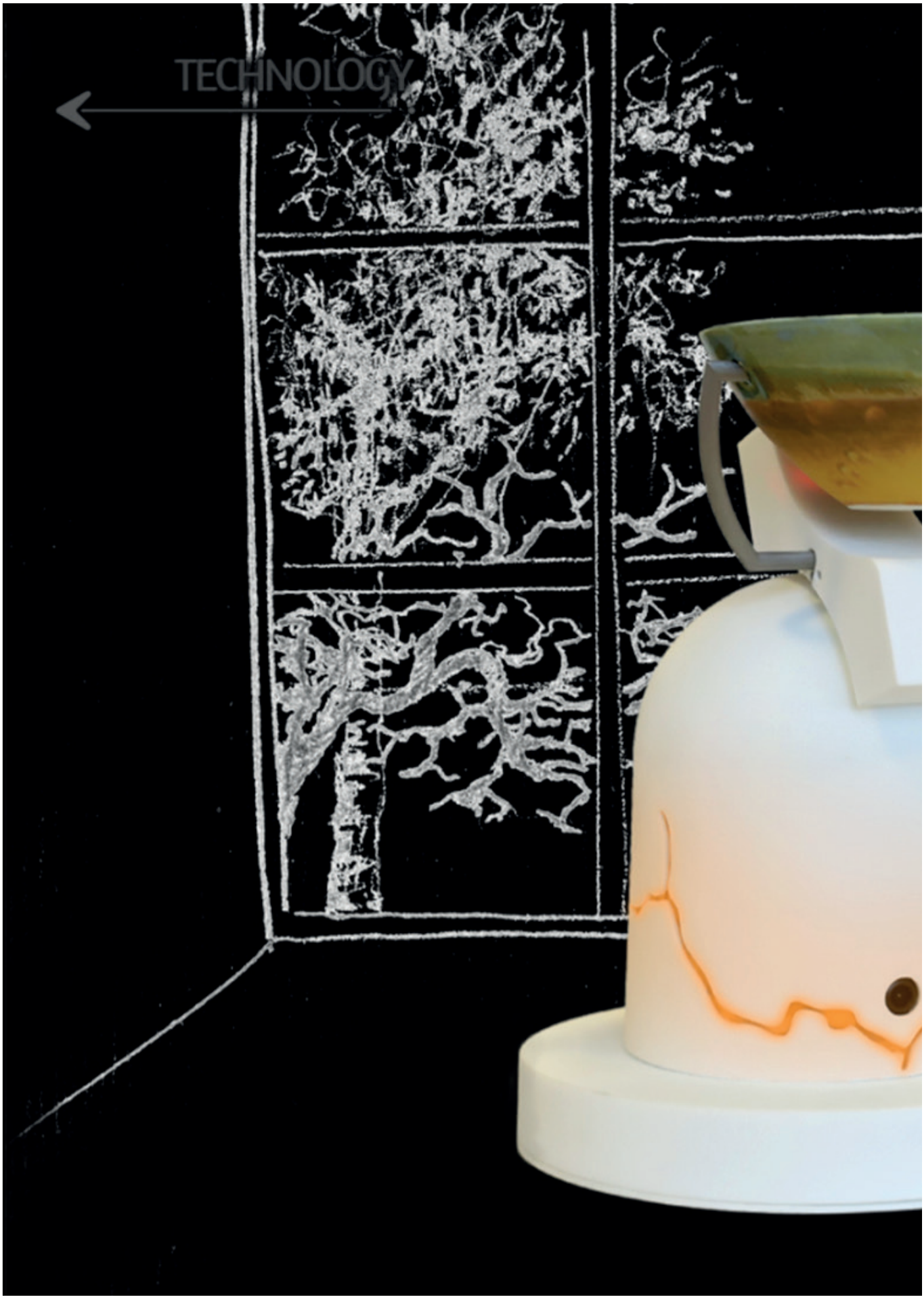
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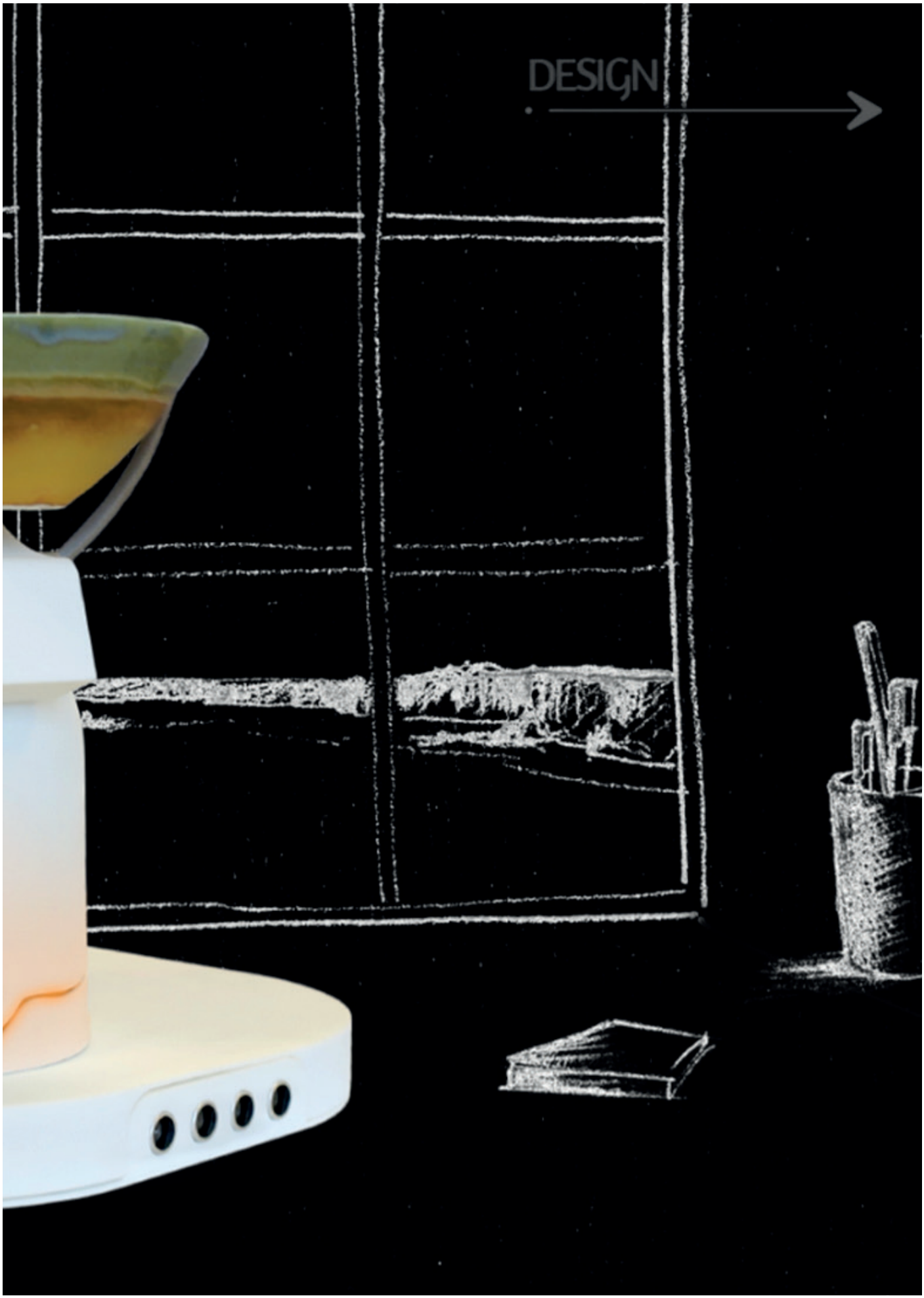
DESIGN


DESIGN
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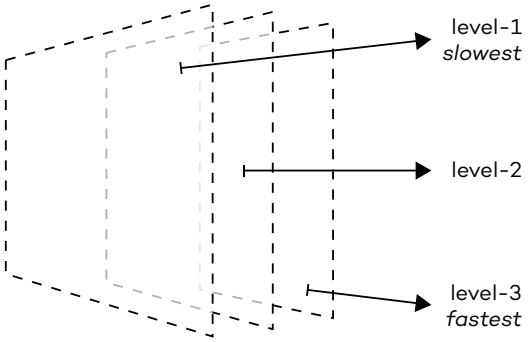

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about the authors

Dominique Deuff (PhD) is an ergonomist at Orange Innovation. Through different projects involving ergonomics, she has integrating design tools and approaches, focusing on user research. Her latest project regarding the impacts of behavioral objects in the home ecosystem was at the center of her PhD work in ergonomics and design.

Isabelle Milleville-Pennel (PhD) is psychologist and full-time researcher at the CNRS in the Laboratory of Digital Sciences of Nantes (LS2N). Her main topics concern cognitive ergonomics and human-machine interaction and is organized around three main axes. The first two are centered on human interaction in and with virtual environments, whilst the third is focused on social robotics.

Ioana Ocnarescu (PhD) is Director of Research at Strate École de Design. She is in charge of the Robotics by Design Lab, a joint multidisciplinary lab that brings together companies, robotics researchers, and PhD students to invent new ecologies of living together with technological alterities in situated contexts.

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Gentiane Venture (PhD) is Professor of Robotics with the University of Tokyo and a cross-appointed fellow with the National Institute of Advanced Industrial Science & Technology, Japan. Her research focuses on the dynamics of human, robots, and the environment. Her group and her work are transdisciplinary, seeing robotics not as field with applications in certain areas but rather as an art of living together.

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LAYER 1
Original drawings, Dora Garcin, 2020.
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LAYER 2 (images from left to right)
Images 1 to 8: 3D-generated images, Dino Beschi, 2021. Image credit and graphic transformation: Dino Beschi, 2021.

Image 9: photograph, Dominique Deuff, 2021. Photo credit and graphic transformation: Dominique Deuff, 2021.

Images 10 : 3D Model, Nicolas Pellen 2021. 3D-generated images, Clément Laurenziani, 2021. Image credit and graphic transformation: Dominique Deuff, 2021.

Images 11 : 3D model, Nicolas Pellen 2021. 3D-generated images, Nicolas Pellen, 2021. Image credit and graphic transformation: Dominique Deuff, 2021.

Images 12 and 13: drawings, Dominique Deuff, 2021. Image credit and graphic transformation: Dominique Deuff, 2021.

Images 14 and 15: 3D-generated images, Corentin Aznar, 2020. Image credit and graphic transformation: Dominique Deuff, 2021.

Images 16 and 17: drawings, Corentin Aznar, 2021. Image credit and graphic transformation: Dominique Deuff, 2021.

LAYER 3
Drawings, Dominique Deuff, 2021.
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