



centre for innovation  
and design  
at Grand-Hornu



Filippo Nassetti and Vincenzo Reale *Thalassic Masks* 2021 © Paul Farnham

press  
release

# **SUPERPOWER DESIGN**

Curator and scenographer: Benjamin Stoz

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## INTRODUCTION

The pursuit of performance, the drive to be faster, stronger, more beautiful and more intelligent, established itself as a model for social behaviour in the 1980s.<sup>1</sup> Sporting prowess, mass consumption and professional ambition have become the dogmas for a society committed to constant growth. As a species, humans have always adapted to their environment, but the demands we face when it comes to performance continue to grow, and are evolving fast. Associated both with success and with excess, this culture of striving for “more, more, more” drives us towards a new way of adapting so that we aren’t left behind: enhancement. These days, we don’t just try to repair a body, we attempt to perfect it. A kind of body design, the “art of non-medical transformation”<sup>2</sup> to improve individual performance by scientifically or technologically tweaking the body.

Can design turn us into superheroes?

Since its very early days, design has had a unique relationship with the technical development of our day-to-day lives. Not only does it represent the perfect platform for experimentation, but it also crystallises an ideology that has an ongoing relationship with the different industrial revolutions of the 19<sup>th</sup> and 20<sup>th</sup> centuries.<sup>3</sup> In today’s technological and digital landscape, it is a tool that helps us think about and come up with ways to improve our capabilities. The application of design in fields such as sporting performance, prosthetics and healthcare are concrete manifestations of a desire to break biological boundaries using technology. Exoskeletons, prosthetic eyes or third thumbs: this vision of a superior human is reminiscent of certain works of science fiction. However, above and beyond the fantasy of a human cyborg, contemporary design is tackling experiments involving a whole series of objects, materials, implants and extensions to the human body, allowing us to transcend our physical, intellectual and emotional performances. Some speculative projects are forcing us to think about the moral value of these future transformations, in terms of liberty, autonomy, equality and human dignity. This doping of humans with technology raises new questions about whether or not we should be using certain emerging processes to enhance mankind. As has happened at different moments in its history, design is once again at the very heart of the public debate about the moral and social implications of technology in our day-to-day lives.

Albert Camus once said: “Man is the only creature who refuses to be what he is”.<sup>4</sup> This observation takes on its full meaning in the current quest for a perfect being blessed with “super powers”. However, this notion of an enhanced human makes us more aware of our own fragility.<sup>5</sup> Technology seems to be the solution to this quest for standardised perfection. But couldn’t this technology be used to serve less individualistic ideals than human performance?

<sup>1</sup> Alain Ehrenberg, *Le culte de la performance*, Paris, Ed. Calman Levy, 1991.

<sup>2</sup> Jérôme Goffette, « Anthropotechnie (ou anthropotechnique) et Human Enhancement », pp. 17-25, in Gilbert Hottois, Jean-Noël Missa, Laurence Perbal, *L’Humain et ses préfixes – Encyclopédie du trans/posthumanisme*, Paris, Vrin, 2015.

<sup>3</sup> Alexandra Midal, *Design – introduction à l’histoire d’une discipline*, Paris, Pocket, 2009

<sup>4</sup> Albert Camus, *L’homme révolté*, Paris, Gallimard, 1951.

<sup>5</sup> Johann Roduit, *The Case for Perfection: Ethics in the Age of Human Enhancement*, Lausanne, Peter Lang, 2016.

Thanks to design, could the superhuman of the future be more empathetic, more social, more environmentally responsible, in other words: more human?

### 1.HUMAN REPAIRS

Our body is the result of some amazing evolutionary engineering. However, this phenomenal machine is still fragile, and will probably have to undergo some repairs and tweaks during the course of its existence. Bionic prostheses, exoskeletons, bioprinting, nanotechnology and biotechnology: our modern world has managed to develop a whole arsenal of solutions that make it possible to repair a traumatised or diseased body. We can replace mutilated limbs, correct malfunctions and discover capabilities that have been lost.

The application of industrial design to repairing the human body has come on in leaps and bounds during the 20<sup>th</sup> and 21<sup>st</sup> centuries. Indeed, ever since the famous splint designed by Charles and Ray Eames in 1942, design has been involved in the transformation of the healthcare landscape. Technological progress, scientific discoveries and social changes have created a growing need for innovation in healthcare environments. Design is not limited to aesthetics: it plays an important role in ergonomics, functionality and the user experience of therapeutic equipment, which can have a significant impact on patient care and wellbeing.

However, the dizzying speed of technological advances demands constant adjustments to designs in order to meet society's growing needs. In future, there might be a change in perspective in the field of medicine and medical technology. Indeed, repairs could go even further than just correcting existing damage, improving an individual's natural capabilities, above and beyond their standard levels.

### 2.HUMAN IMPROVEMENTS

From the economy to technology, via the world's population, we live in an environment where growth is everywhere we turn. The concept of improved humans, carrying out day-to-day tasks more efficiently, but also capable of going beyond their own limits, is one of the consequences of this unstoppable growth. The body seems increasingly to be perceived as a tool that can be improved. By sport, by medicine or by cosmetic surgery, but also by the use of psychostimulants that boost cooperation and cognitive performance.<sup>6</sup>

In reality, we are already new and improved humans!

<sup>6</sup> P.-Y. Cusset, « Les technologies d'amélioration des capacités humaines », *La Note d'analyse*, vol. 310, Centre d'analyse stratégique Paris, 2012.

Wearable technology like watches and smart clothes, or intelligent earbuds, are all devices that help to analyse, calculate and adjust our bodies. Measuring sleep, health and physical activity, this technology adapts in real time, to our morphology as well as to our everyday tasks. These new objects have emerged, driving forward the transformation of our day-to-day lives, changing the way we communicate, work, have fun, and even take care of our health. This discreet, yet potent revolution has profound ramifications in many different aspects of our lives, redefining the way we interact with the world around us.

In sport, these devices have broadened the realms of possibility: monitoring performance, customisation, managing recovery, preventing injury and honing training strategies. As technology continues to progress, it is likely that its impact on the world of sport will only get bigger, opening up new possibilities for athletes and sports fans. But there are some ethical questions regarding the influence of this technology on the integrity of sport. For example, Speedo's *LZR Racer* swimming costumes, or Nike's *Vapor Fly* shoes, have been linked to a number of sporting records thanks to their technical features. The use of these devices could eclipse sportsmen and women's individual abilities and reduce competition to a technological battle rather than a demonstration of talent and determination. This calls into question the fundamental principles of fairness and equality when it comes to chance in sport.

We are witnessing a fusion between technology and the body. But future developments could lead to more radical enhancements and raise some much more complex questions. Indeed, it is vital that we consider the ethical, social and cultural implications of these advances. The term "enhanced human" may trigger concerns about the creation of social disparities, unequal access to technology, data protection and non-consensual human genetic modification.

Dreamt up by Iga Węglińska, *Emotional Clothing* refers to technological clothing that acts as a sensory prosthetic, giving our bodies new capabilities. It uses a phenomenon called biofeedback, signalling psychophysiological changes that occur in the wearer's body, such as body temperature, heart rate, electrodermal activity or proprioception. The Polish designer was inspired by Andy Clark and David Chalmers' theory of the Extended Mind, whereby material objects, such as intimate diaries and personal computers (external accessories that can record information) can take over some of our thought process and be treated as peripheral elements in the process of perception, and our mind does not only live in our brain or even in our body, but can extend out to the physical world through the medium of objects.

### 3. HUMAN ENHANCEMENTS

As we have seen, rapid technological advances are opening up new possibilities when it comes to how we interact with our environment and, even more importantly, with our own body. Human enhancement - or anthropotechnics - is defined as any modification designed to improve human performance, permitted by bodily interventions based on scientific and technological principles.<sup>7</sup> This performance may be physical, intellectual or emotional. In his reflections on the development of an anthropotechnic environment<sup>8</sup>, Jérôme Goffette explores a whole array of extra-medical practices focusing on human enhancement including boosting strength, sharpening intelligence, managing procreation, modulating sexuality, adjusting aesthetics and altering emotions. For the philosopher J-M Besnier<sup>9</sup>, these desires to enhance human beings reveal our fatigue with being ourselves. This quest for perfection is above all a means of not being overtaken by the machines that humans themselves have created. Indeed, you have to improve so as not to be outdone by technology.

Enhancing the human body, which is often associated with advances such as smart prosthetics, virtual reality and even genetic modification, raises a whole host of ethical questions. Against this backdrop, design plays a key role in shaping these innovations responsibly, taking into account the social, psychological and philosophical implications of human enhancement. Could our brains cope with an extra eye, a third thumb, or a robotic tail that extends our spine? Designers have a responsibility when it comes to creating tools to improve the lives of individuals, whilst also respecting their fundamental rights. Responsibility, informed consent, social inclusiveness and the preservation of individual identity are the new challenges faced by the idea of "designing" the human body.

Dani Clode came up with *The Third Thumb*, an extension of the human hand that is 3D printed and controlled by your feet. The project analyses the relationship between moving the body and controlling technology connected to the body. The third thumb is moved thanks to wires connected to motors in the wrist. The motors are controlled by two pressure sensors fitted in your shoes, under the toes, and communicate with the thumb via Bluetooth. This project was the subject of a study looking at the possibility of enhancing motor function and an investigation into the implications of neural representation and how biological hands work.

7 Coenen, Christopher et al., « Human Enhancement. Study » in *Parlement européen, Science and Technology Options Assessment (STOA)*, 2009. En ligne sur : <http://www.itsa.fzk.de/deu/lit/2009/coua09a.pdf>

8 J. Goffette, « Anthropotechnie (ou anthropotechnique) et Human Enhancement », pp. 17-25, in G. Hottois, J-N Missal, L. Perbal, *L'Humain et ses préfixes - Encyclopédie du trans/posthumanisme*, Paris, Vrin, 2015

9 Besnier J.-M., *Demain les posthumains*, Paris, Hachette Littératures, 2009, coll. "Haute Tension"

Human enhancement raises questions about the society in which we are living.<sup>10</sup> Speculative design will give our society a new approach, dedicated to exploring and challenging potential futures. Projects that use speculative design can be provocative, calling into question existing norms and forcing people to think critically. This stimulates discussion about the ethical, social and cultural values associated with human enhancement. This is an awareness-raising tool that encourages public engagement in a broader debate about the relationship between our body and technology. By concentrating on potential human experiences in augmented futures, speculative design highlights a human-focused approach. This allows us to take into account the needs, concerns and aspirations of individuals in the design process.

### 4. SUPERHUMAN

This vision of our future that only considers an essentially technoscientific approach to human progress completely disregards the idea of social progress. However, if we consider the ideal of human perfectibility inherited from the humanism of the Enlightenment, the emancipation of human beings relies more than anything else on improving the conditions of their social and political lives.<sup>11</sup> These techniques for improving our intellectual and physical capabilities are driving humans to feel imperfect and dysfunctional. Indeed, this race towards performance and perfection puts us in a situation in which the fragility of our bodies, associated with their status as living organisms, becomes an "illness" that needs to be treated.<sup>12</sup>

Instead of imagining an efficient, flawless superhuman, couldn't we come up with alternatives that could enhance other capabilities, such as empathy, inclusion or creativity? Instead of being stronger, faster, more attractive people, couldn't we be better at communicating, more sociable and more environmentally responsible? For historian Yuval Noah Harari, the fragility of human beings is broadly offset by their capacity to work together with one another.<sup>13</sup>

10 N. Le Dévédec, F. Guis, « L'humain augmenté, un enjeu social », in *SociologieS* [Online], First texts, en ligne depuis 19/11/2013, connexion 23/09/2023, <http://sociologies.revues.org/4409>. DOI : 10.4000/sociologies.4409

11 N. Le Dévédec, F. Guis, « L'humain augmenté, un enjeu social », in *SociologieS* [Online], First texts, en ligne depuis 19/11/2013, connexion 23/09/2023, <http://sociologies.revues.org/4409>. DOI : 10.4000/sociologies.4409

12 Johann Roduit, *The Case for Perfection: Ethics in the Age of Human Enhancement*, Lausanne, Peter Lang, 2016

13 Yuval Noah Harari, *Sapiens, une brève histoire de l'humanité*, Paris, Albin Michel, 2015.

Being aware of this fragility could be an alternative to these technological improvements, allowing us to refocus on this need to be connected to one another. In his research project, *Prosthetic X*, Isaac Monté has come up with a collection of prosthetics that can be used as aesthetic indicators of whether (certain) body parts do or do not work. They change as they react to personal social data, health data and external measures. For the Belgian designer, *Prosthetic X* explores how non-invasive health-monitoring tools will give us an overview of social, mental and physical health. They will reinforce empathy, celebrate knowledge and combat the threat of solitude, isolation and the health problems of an ageing population.

Susanna Hertrich's *Jacobson's Fabulous Olfactometer* project is a sensorial prosthesis for extreme environments. It takes its inspiration from a sense organ called "Jacobson's organ", which allows certain animals to perceive odourless chemicals. Two sensors worn on the forehead register small particles and CO2 levels. When a dangerous threshold is exceeded, gears are set in motion and the top lip is pulled upwards to modify the wearer's face, similar to an animal behaviour known as the "flehmen response".

Homo sapiens is also *Homo faber*, made of a combination of theory, technique and even "bricolage".<sup>14</sup> This "bricolage" offers design a key role. Indeed, since its very early days, design has focused on shaping the world around us. Over the last few years, this discipline has been involved in biomedical processes such as biotechnology, neuroscience and medical engineering. For designer Pleun Van Dijk, we repair what is damaged, replace the broken body parts and modify our appearance until it corresponds to whatever we want. And so we seem to hold the key to perfection, gradually turning ourselves into "designer" humans. Now that we have got better at deconstructing human beings, the question then arises of whether we are also capable of reconstructing ourselves. This reconstruction raises a number of moral, philosophical and ethical questions about the type of humans we want to be in the future.

The brainchild of Jasna Rok *Trypophilia* is a collection of sensitive clothing that allows us to make our emotions visible and facilitate their communication. It acts like an augmented, intelligent skin, enveloping the wearer in an intimate, expanded perception of themselves (health, emotions, thoughts) and of the world around them. Thanks to high-tech clothing, the Belgian designer creates empathetic objects that facilitate communication by offering humans the chance to forge more tangible connections between one another.

<sup>14</sup> G. Hottois, *Species Technica*, Paris, Vrin, 2002.

## DESIGNERS

Alan Hook et la Ulster University, Amoena Medizin-Orthopädie-Technik GmbH, Bruno Aubert – SoleCooler, Cerhum, Charles et Ray Eames, Cheng Chang, Circleg, Dani Clode, Didier Fiùza Faustino, Dyson, Filippo Nasetti, Freyja Sewell, Govert Flint, Iga Węglińska, IOL Design, Isaac Monté, Jann Choy, Jasna Rokegem, Kuang-Yi Ku, Lanzavecchia + Wai (Francesca Lanzavecchia and Hunn Wai), Laura Deschl, Marc Sapetti, MHOX - Filippo Nasetti et Alessandro Zomparelli, Minwook Paeng, Morgan Chen, Nike, Orthopédie Protechnik, Paul Gong, Pleun Van Dijk, Professeur Alice Roberts, Sruli Recht, Rafael Gil Corderio, Rosie Broadhead, Sascha Nordmeyer, Scaled Tech, Susanna Hertrich, Wisear, Zygintas Papartis

Didier Faustino  
*Doppelgänger*, 2011

© Photo ADAGP



Jann Choy  
*Dramatic interpretations of a user wearing a mask, showing the parallels of the internet as an opera, and us the users, as the performers within 2021*

© Photo Jann Choy



Marc Sapetti  
*Chairless Chair 2.0 – Noonee*, 2019

© Photo Marc Sapetti



Susanna Hertrich  
*Jacobson's Fabulous Olfactometer*, 2014

© Photo Susanna Hertrich





Francesca Lanzavecchia & Hunn Wai  
*Metamorfosi Vegetali*

© Photo Davide Farabegoli



Minwook Paeng  
*The Third Eye, Evolution1*

© Minwook Paeng



Iga Weglinska  
*Emotional Clothing, 2021*

© Photo Mila Lapko



MHOX  
*Generative Orthoses Hand 1, 2014*

© MHOX



Kuang-Yi Ku  
*The Fellatio Modification Project*, 2015

© Kuang-Yi Ku



Michael Verleyen – lol Strategic Design  
*Cefaly*, 2014

© Michael Verleyen



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**OPENING TIMES**

Every day from 10 AM until 6 PM, except Mondays.  
The Grand-Hornu is closed on 24, 25, 31st December and 1st January.

The office can be reached during weekdays from 8 AM to 4.30 PM.

**ADMISSION FEE**

- Combined ticket for the Grand-Hornu site / CID / MACS: €10
  - Discount: €2 or €6
  - Group rates (minimum 15 ppl.): €6
  - School groups: €2
  - Free for children under 6
  - Free entry on the first Sunday of the month
  - Free guided tour from Tuesday to Friday at 3.30 PM, Saturday at 11 AM and 3.30 PM, Sunday at 3 PM and 4.30 PM
  - Audio-guides for the historic site: €3  
(FR / DUTCH / GERMAN / ENGL / IT / SP)
- Free guided tours for individuals
- From Tuesday to Saturday at 11 AM for the historic site, at 3:30 PM for the design exhibition
  - Sunday at 3 PM for the historic site, at 4.30 PM for the design exhibition.

**BOOKING NUMBER**

Advance reservation required for guided tours (by appointment) of exhibitions and/or historic site (FR / DUTCH / GERMAN / ENGL).

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**CATERING**

Run by Olivier Devriendt, former second-in-command to Sang Hoon Degeimbre at L'Air du Temps, **Rizom** offers a cuisine that is a cross between cultures. In addition, **Rizom** also offers a new fast food service in the cafeteria, which was recently transformed by designer Benoît Deneufbourg.

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