

27 SEPTEMBER - 30 OCTOBER



**MAKING A DIFFERENCE /
A DIFFERENCE IN MAKING**

EXPLORE THE VALUE OF 3D PRINTING


materialise
innovators you can count on



reddot design museum

In the 25 years that Materialise has existed, its main goal has been to create objects, software and medical implants that truly make a difference in other people's lives.

Today, 3D Printing is influencing our lives and culture. It has already made more of an impact than most people realize and this influence will become even more pronounced in the future. Through the exhibition "MAKING A DIFFERENCE/A DIFFERENCE IN MAKING", visitors can get a realistic impression of what 3D Printing is like today and how it might impact the future, in terms of both its threats and opportunities.

Curator Marta Malé Alemany has selected over 80 projects from around the world to illustrate how 3D Printing is a revolutionary technology, that is "a difference in making", and how its applications are "making a difference". These 3D-printed objects have been carefully chosen because they solve concrete problems showing how the technology can be an added value in terms of the environment, individual lives and society.

The wide interest and success of the exhibition in Brussels at the prestigious BOZAR Centre for Fine Arts has encouraged us to make this a travelling exhibition. Materialise is very proud to present "MAKING A DIFFERENCE/A DIFFERENCE IN MAKING" in the Red Dot Design Museum of Essen, which displays the world's largest exhibition of contemporary design and is a reference for industrial designers.

CaCO₃ STONEWARE

By: Laura Lynn Jansen and Thomas Vailly, 2014

As a result of placing a 3D-printed scaffold structure in an environment that encourages stone petrification, these pieces challenge the traditional nature of stone cultivation (carving and extracting) to a process of "growing" stone.

MAKING A DIFFERENCE / A DIFFERENCE IN MAKING



Solid C2 Chair

By: Patrick Jouin, 2005

As the first 3D-printed chair to be printed in one piece, the Solid C2 chair was inspired by the way leaves of grass bend and intersect when they grow too high.

3D Printing is a manufacturing technology that is transforming the way we make things. Experts say it will be a key technology for this century, enabling developments that were impossible before. Yet its current expansion shows us diametrically opposing applications: 3D Printing can be used to print weapons or life-saving tools. Like all groundbreaking technologies, its impact and added value is thus relative to how we use it. Which creative universes does it open up? What technical innovations? How is it used collectively and individually by us?

This exhibition examines how 3D Printing can make a difference to conserve our environment, shape our society and change individual lives. In parallel, it also presents works that celebrate form and experimentation, enabled by a technology that allows us to make things differently than we did in the past. Both sections aim at widening our perspective on the added value of 3D Printing, and trigger a critical reflection on what this technology may bring to our future.





Kinematics Dress

By: Nervous System, 2014

Composed of thousands of interlocking components, this dress moves with the wearer and is full of movement. Design, simulation and digital fabrication come together in this piece, 3D printed as a single folded piece that requires no assembly.

Compared to traditional manufacturing, 3D Printing is a revolutionary technology. In the past, how to make something was limited to the possibilities offered by 3 main processes: subtractive (e.g. cutting or milling), transformative (e.g. melting, casting or bending) or assembly of separate parts (e.g. welding, gluing or nailing). With 3D Printing you can make any shape you'd like starting from scratch, based on a digital file: it works by adding very small, controlled quantities of matter (often in layers) on top of each other. Truly "a difference in making".

A DIFFERENCE IN MAKING

Since its origins, artists and designers have embraced the technology and explored its potentials. Their creations often push the boundaries of what is hypothetically possible, and 3D printing companies and experts embrace these experimental challenges to advance their own research. This synergy enables and inspires the expansion of 3D Printing to other domains: oftentimes they result in technical discoveries that are transferred to successful industrial applications.



098XYZ

By: Earl Stewart, 2013

As a hybrid between 3D printing technology and traditional shoe making, this piece illustrates how the most advanced processes of fabrication can be integrated with well-established crafts.

The disruptive nature of 3D Printing is often best perceived in areas outside the experimental field of artistic applications, where it is used to resolve concrete problems, or respond to critical questions in a new way. These areas embrace diverse fields of engineering, science, and other domains, which address challenges that directly affect our lives. By overcoming the limitations set by traditional manufacturing, 3D Printing allows us to rapidly prototype, test and manufacture novel solutions, while constantly uncovering new fields of application.

MAKING A DIFFERENCE



Ti-JOIN Chair

By: Peter Donders, 2012

Following principles of lightweight design, these 3D-printed joints provide rigidity and structural strength with a minimal amount of material, and a way to connect carbon fiber tubes together to create a variable structure for a chair.

DOMAIN: MAKING A DIFFERENCE / ENVIRONMENT

3D Printing has many environmental benefits. It is known to be a practically zero-waste manufacturing process and can create optimized designs with minimal material. These designs can also have functional, complex features that later help save significant resources, e.g. fuel. Additionally, 3D Printing can reduce the global transportation footprint by facilitating decentralized, high-tech, local production. However, 3D printers require hours of power and generally oil-based and unrecyclable materials. This reality is triggering research on alternative 3D printing practices, using ecological materials and renewable energies.



ARUP

By: DVE ARUP (GALJAARD Salomé, HOFMAN Sander, REN Shiba), 2013

The benefit of 3D-printed metal architectural nodes is manifold: beyond optimizing a component's structural performance with less material, they considerably reduce traditional construction costs like transporting materials, pre-fabrication and final assembly.

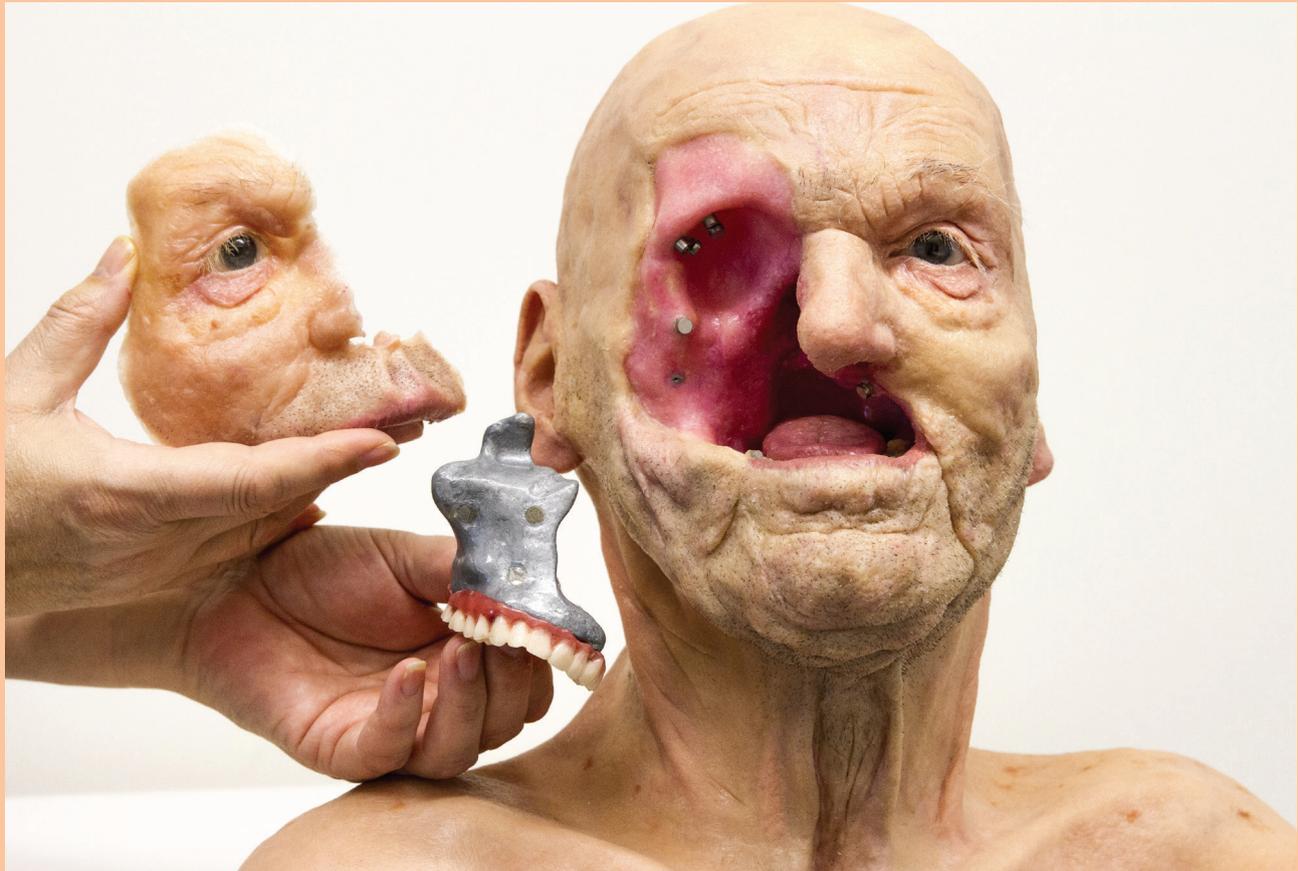
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FIX3D

By: James Novak, Griffith University, 2014

Designed using lattice structures to make it lighter and stronger than traditional bike frames, this bike frame was manufactured in one piece with 3D Printing, thus using minimal amount of material and energy.



Patient-Specific Anaplastology

By: Vigo [CCE]

After a significant portion of a patient's face was removed due to a malignant tumor, anaplastologist Dr. Jan De Cubber, used a 3D-printed patient-specific bone-anchored prosthesis. Later he created this silicone model to illustrate the reconstruction.

To produce small batches or unique objects, 3D Printing offers significant advantages: it eliminates the need for costly molds and/or production steps to make the same object by traditional means. Coupled with 3D scanning and advanced software, these advantages make it easy and affordable to create individualized objects.

DOMAIN: MAKING A DIFFERENCE / INDIVIDUALS

The added value of tailor-made items is vast, as they often improve the reality of our own existence. Nowadays, effective applications are increasingly used in medicine and design-related areas that directly impact the lives of individuals.



HIBBOT

By: Medical Robots, 2015

By controlling the pelvis and correcting the gait of children with cerebral palsy or other handicaps, the HIBBOT is a lightweight robot designed to allow children with disabilities move, leading to a better social and psychological way to play and exercise with both hands.

Shoe Insoles

By: RS Print, 2014

RS Print creates customized footwear solutions using 3D printing technology. These 3D-printed insoles are designed using dynamic, biomechanical data. They are the first of its kind, because they are customized to truly support the every move of an individual.



DOMAIN: MAKING A DIFFERENCE / SOCIETY

Technological advances always trigger new trends and social phenomena - for better or worse - and 3D Printing is no different. This technology has many positive applications for our society: providing novel ways to conserve our heritage, empowering education and more. Simultaneously, 3D Printing is a disruptive technology because it introduces a decentralized and democratic form of high-tech manufacturing, which puts the "power to produce" back in the hands of people. In consequence, new products and ideas are emerging everywhere, beyond companies and laboratories, developed by individuals and grassroots maker communities.



Screw It Dog

By: David Graas, 2013

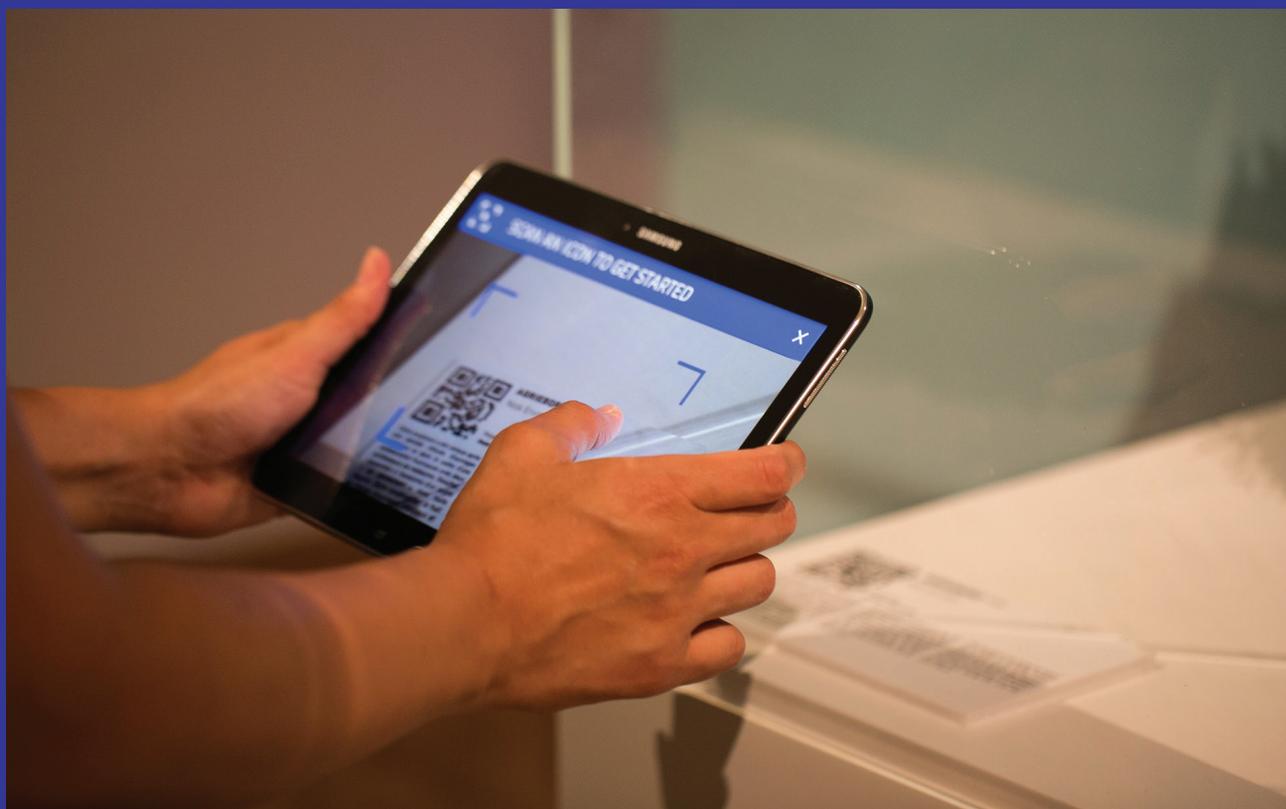
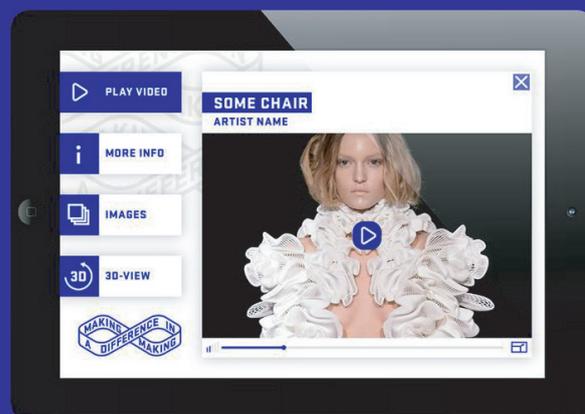
SCREW IT is a collection of small 3D-printed objects that are specifically designed to give everyday objects a second life in a creative way. By adding a 3D-printed part, these objects acquire new meaning and functionality.

ABOUT THE APP

This exhibition can be best viewed with the tablet that is distributed at the museum entrance. This tablet gives access to an app, which has been customized for the exhibition, and contains additional information on all 80+ works on display.

When a visitor scans the QR code associated with a specific work, they'll find: photos, a detailed project description, the biography of the author(s) and, when applicable, video footage. For a number of projects, it also includes an interactive 3D model of the work on display.

Finally, there is also a series of symbols on the floor of the exhibition, which, when scanned, prompt messages in the form of a statement or a question. These interactive messages have been integrated to complement the content on display, with the intention to engage visitors in reflecting on the added value of 3D Printing, and what this technology may bring to our future. The use of the tablet and answers to these questions are all anonymous.



ABOUT THE CURATOR



Marta Malé-Alemany is a doctor in architecture, researcher and curator specialized in the relationship and integration of design with advanced fabrication technologies. She has curated several 3D printing exhibitions and programmed specific cultural agendas for museums, in the domain of innovative design production and digital craftsmanship.

Marta's own work, in both academic and professional domains, follows a research-driven integrated methodology between design and manufacturing. Her work focuses on how to innovate industrial design and construction, by developing novel material solutions and building methods. These innovations engage research and experimentation on materials, the creative development of both DIY custom software and fabrication devices, as well as the use of advanced manufacturing processes present in the industry.

In practice, she has used this approach to realize various award-winning interior designs, large-scale installations and diverse architectural applications. In academics, she has accumulated over 17 years of experience teaching in renowned universities and schools in the U.S. and Europe, where she founded and directed several Master and Post graduate educational programs. Currently she is the Head Lecturer in Digital Production at the Faculty of Technology at the Amsterdam University of Applied Sciences, and is appointed to review the architectural master programs of several European institutions.

ABOUT MATERIALISE



Ever since Wilfried Vancraen started Materialise, he and all of us who work at Materialise have dedicated ourselves to be the innovators that others can count on. Now, after more than 25 years of hard work and successful collaboration with others, we are happy to report that even those who have never heard of Materialise have probably been touched by the work made possible by our products, services, and solutions.

Through our work with Additive Manufacturing (AM), also known as 3D Printing, Materialise is helping to bring great ideas to life. We work with others to put great products, aimed at niche markets, directly on the market, as well as help make the prototypes for products later manufactured by the millions. What's more, through our software we enable others to do the same with their own AM equipment and services.

Our software is powering new innovations in biomedical research, helping others make discoveries that save lives. Furthermore, we are taking patient-specific healthcare to new heights by working closely with surgeons in the planning and execution of complicated surgical procedures. Our work with surgeons, and the improved medical solutions being created with our software, are getting people back on their feet, and putting smiles back on patient's faces.

Materialise is also putting the power of Additive Manufacturing into the hands of everyday people. With an easy-to-use online service, now anyone can create a truly customized object, whether they are experts at computer modeling or beginners who are discovering 3D Printing for the first time. We have challenged some of the world's top designers to use this technology in the creation of an award-winning line of 3D Printed objects available for sale online and in brick-and-mortar shops worldwide.

Headquartered in Belgium, with branches worldwide, Materialise combines the largest group of software developers in the industry with one of the largest 3D printing facilities in the world.

For additional information, please visit:
www.materialise.com



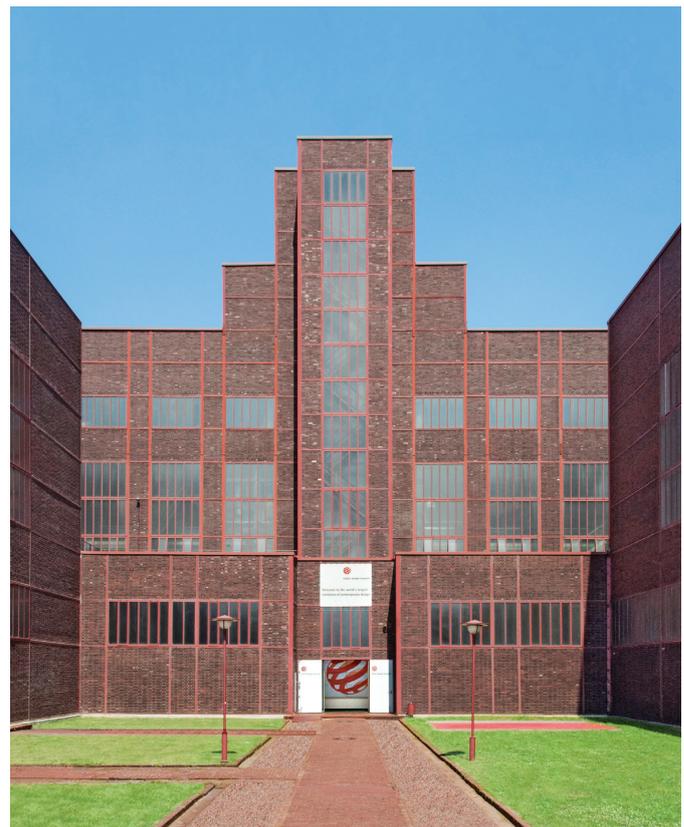
ABOUT RED DOT DESIGN MUSEUM

Red Dot Design Museum Essen: 2,000 inspirational exhibits at your fingertips

The best product design, from inventive USB flash drive to multifunctional stove to a hanging helicopter, awarded by an international expert jury: On five floors, the Red Dot Design Museum offers the largest exhibition of contemporary design worldwide. All of the approximately 2,000 shown exhibits were awarded in the well-known Red Dot Design Award. On average, 150,000 visitors per year see the shapely and highly innovative exhibits. The museum becomes experientable as touching and testing most of the objects is allowed.

Every year, design experts from all over the world decide which products will be on display in the Red Dot Design Museum. They make up the jury for one of the world's most important product competitions: the Red Dot Award: Product Design. In the course of long sessions, they test and discuss the products, assess their innovative design quality based on different criteria depending on their task and purpose, and ultimately decide which have earned the

The inspiring atmosphere of the house is exuded mainly by its impressive architecture. Built between 1928 and 1929, the former boiler house of the colliery Zeche Zollverein served for many years as the power house for the complex, which was abandoned in 1986. Since 2001, the complex is listed as a UNESCO World Heritage Site.



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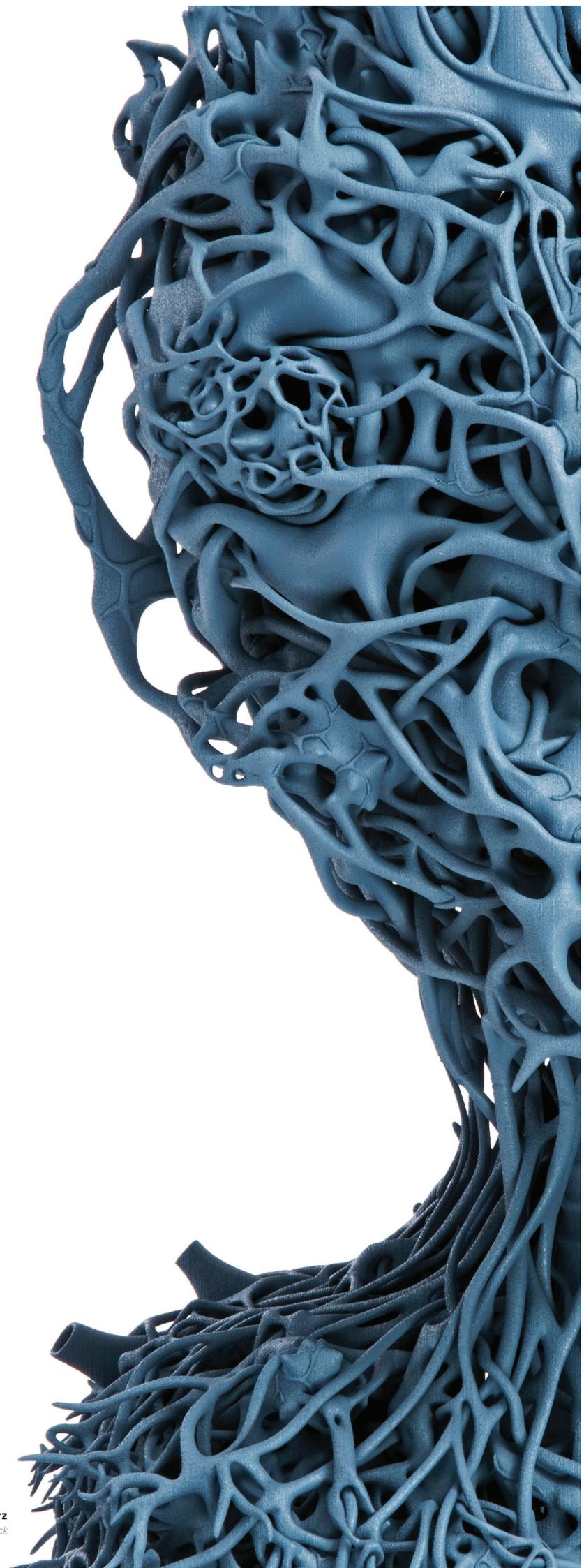
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by Nick Ervinck