



Rapid.Tech 3D

9 – 11 May 2023, Messe Erfurt, Germany

RESILIENCE. NOW.

MATTISSE, the 3D printed breast implant wins the 3D Pioneers Challenge 2023

(Erfurt, 11 May 2023)

The exhibition and award ceremony of the eighth edition of the 3D Pioneers Challenge, the international competition for additive and advanced technologies, was a highlight of Rapid.Tech3D in Erfurt.

The exhibits ranged from large-scale 3D printing of architectural elements to complete e-cars art objects. Visitors could watch a robotic arm print a dress or discover 3D printed materials from eggshells to oysters. They could get active themselves and take a closer look at printed electronics on the nanoscale at the microscope and thus experience first-hand what 3D printing makes possible.

The 3D Pioneers Challenge has established itself as one of the most important competitions in the 3D printing industry. Entries from 29 countries and 5 continents were submitted, 43 made it into the exhibition. The finalists and award winners had travelled to Erfurt at the beginning of May from Europe, America, Tunisia, Singapore and Australia.

The tension was palpable as the 10 winners were announced on the second day of the fair and the prizes were awarded by jury members and partners of the 3DPC.

The focus of this year's Challenge was: *RESILIENCE. NOW. Advanced Technologies to enable a sustainable tomorrow.*

What could be more in line with this topic than the main prize winner in "MedTech" MATTISSE from France? These totally resorbable 3D printed implants allowing a natural, simple and risk-free breast reconstruction after cancer could positively change the lives of millions of women after a cancer diagnosis.

The "Sustainability" Award went to the "Material" category with the project "FLAM", from the University of Singapore. They enable true circular additive manufacturing with bioinspired manufacturing and Fungal-like Adhesive Materials.

Other highlights were the "Best Student Project" from the Bauhaus-University of Weimar "Algae" by Lena Vogel, who explored the cultivation of microalgae.

The 3D-printed basketball by Wilson, which caused a sensation beyond the industry, could decide the "Design" category for itself and "Digital" was won by the Italian company EnginSoft with its "3D printed Helices". The jury was convinced by the potential that these projects can open up for further applications.

A project on a much larger scale won in "Architecture": ETH Zurich with its sustainable robot-assisted construction method that implements additive processes in a novel way.

Mobile 3D printing was demonstrated by "Armstone" from University College London. Julius Sustarevas was awarded in "Machinery" for enabling printing in unlimited space with his autonomous robot.

Individual, "Inclusive Eyewear for A diverse World" and thus REFRAMD was able to win the "FashionTech" category.

With their vision to revolutionise the electronics industry by democratising electronics manufacturing, the Australian team from Syenta won the prize in "Electronics".

The joint project of ETH Zurich, inspire AG and Siemens rethinks the electric motor with its hybrid AM housing in the vertical "Mobility" and takes an important step towards sustainability in the automotive industry by increasing performance.



In total, prizes worth over 185,000 euros were awarded. These included software licences from nTopology and 3YOURMIND, a coaching for the "Best Start-Up" by AM Ventures, and 3D printers from Ultimaker, Asiga and Makerbot. Partner Autodesk awarded 3 Special Mention. The prize money of 35,000 euros was provided by the Thuringian Ministry of Economic Affairs, Science and Digital Society.

At the Rapid.Tech 3D gala event on 10 May at the Zentralheize Erfurt, the prize winners were honoured in this festive occasion by Minister for Economic Wolfgang Tiefensee and CEO of Messe Erfurt Michael Kynast: "The 3D Pioneers Challenge has become an integral and impressive part of our Rapid.Tech 3D and also a real enrichment. In the eighth year we are again delighted to be able to show the forward-looking developments as part of the finalists' exhibition."

Networking evenings like these reflect the spirit of Rapid.Tech 3D and 3D Pioneers Challenge, bringing together innovative minds and initiating new collaborations.

The award ceremony and exhibition of the 3D Pioneers Challenge was an impressive event that once again showed the potential of 3D printing and how innovative the industry is. It was impressive to see how the pioneers and innovators are resiliently shaping a sustainable tomorrow.

Facts 3DPC 2023

Winners 3DPC 2023 with jury comments:

(detailed descriptions see www.3dpc.io, for further pictures, please contact us)

MATTISSE

LATTICE MEDICAL

Dr. Julien Payen, Pr. Philippe Marchetti, Pr. Pierre Guerreschi, Dr. Pierre-Marie Danze, Dr. Jaime Destouesse, Chloe Gigon, Kevin Roux, Megann le Rest, Amelia Jordao, Damien Cleret, Shengheng Cao, Jerome Segers, Josue Alover, Lou Pasquier, Clement Loire, Siham Bouyouaaran, Antonin Debaupt, Ludivine Do, Solemne Demeyere, Florian Plouviez, Lisa Gonzalez, Jumoke Alakinde

FRANCE

- The MATTISSE implant, 3D printed and totally resorbable allowing a natural, simple and risk-free breast reconstruction after cancer

// 10.000 EUR, Asiga MAX UV 3D printer, 3DPC Trophy

Jurystatement: "The use of 3D printing to create patient-specific breast implants using the patient's own body material can be a game-changer in the field of biocompatible implants. The winner in the category MedTech has made a significant contribution towards fighting cancer and improving women's health and well-being."

„3DPC2023 Winner Material and Sustainability“:

FLAM Fungal-like Adhesive Materials

Chitonous / SUTD

Stylianios Dritsas- "Robotics", Javier G. Fernandez- "Materials", Cherie Hu "Table Fabrication", Jian Li Hoo- "Table design"

SINGAPUR

- Fully regional production based on bioinspired manufacturing and material.

// 6.000 EUR



Jurystatement: "The jury is impressed by the innovative use of fungal-based bio-materials in additive manufacturing and the potential for achieving a circular economy. The approach of using natural resources to reduce material waste and create sustainable solutions is inspiring and has the potential to make a significant impact in the field of bio-inspired additive manufacturing."

„3DPC2023 Best student“:

Algae

*Bauhaus University Weimar _ Lena Vogel
GERMANY*

- The 3D printing of clay creates a special surface texture that is deliberately used to benefit the cultivation of microalgae.
// 1.500 EUR, Makerbot Sketch Large 3D printer

„3DPC2023 Winner Design“:

Wilson Airless Prototype basketball

*Wilson Sporting Goods Co. / Wilson Innovation Center
Internal Wilson Team: Inventors / Patent Team: Nadine Lippa – Innovation Manager / Project Lead;
Kevin Krysiak – Sr. Director, R&D, Wilson Team Sports; Hudson Vantrease – Sr. Manager,
Industrial Design; Dave Vogel – Sr. CAD Engineer; Ninad Trifale – Advanced Innovation Manager
Support / Development Team: Bob Thurman – Global Vice President, R&D; Derek Burkhart –
Engineering Technician; Chris Kahle – Manufacturing Engineer Manager; Amanda Schoeffler – Sr.
Engineer; Marcus Chu – Innovation Manager
Partners: EOS North America, General Lattice, DyeMansion
USA*

-The first-of-its-kind 3D printed basketball is truly playable, nearly fitting the performance specifications and does not need to be inflated.
// 2.500 EUR, nTopology license

Jurystatement: "Wilson is showing how they have the curiosity by pushing the boundaries of what is possible with additive manufacturing in lifestyle applications, opening a worldwide awareness for AM with potential impact for further applications."

„3DPC2023 Winner Machinery“:

Armstone: Mobile 3D Printing

*University College London, Computer Science
Julius Sustarevas
GREAT-BRITAIN*

- The Armstone Mobile 3D Printing project is a step towards robots simultaneously inhabiting and shaping their environment.
// 2.500 EUR, Ultimaker S7, Autodesk Special Mention

Jurystatement: "The way of autonomously printing 3D structures without being confined by the printer's dimensions has the potential to offer real-world impact and unlock the next level of additive manufacturing in construction without boundaries."

„3DPC2023 Winner FashionTech“:

REFRAMD inclusive eyewear

*REFRAMD - Ackeem Ngwenya, Shariff Vreugd
GERMANY*

- REFRAMD - Inclusive Eyewear for A diverse World | Every Design - Multiple variations | Addressing Inequality and Systemic Bias
// 2.500 EUR



Jurystatement: "REFRAMD demonstrated the potential for sustainable mass customization enabled by 3D printing, allowing for on-demand production of glasses that are made for individuals in an inclusive and equitable way, making a positive impact on society."

„3DPC2023 Winner Digital“:

3D Printed Helices: simulation insights

EnginSoft

Michele Merelli, Massimo Galbiati

ITALY

- Thanks to digital models, we could predict the structure of 3D-printed helices without testing. In this way, printed-object properties can be tuned.

// 2.500 EUR, nTopology license

Jurystatement: "'3D Printed helices' opens the way for making new composite materials by understanding the rheology and extrusion while running geometric paths to print multi-material, adding a twist to 3D printing and unlocking new innovative applications!"

„3DPC2023 Winner Electronics“:

Syenta Printer – Democratising Electronics Manufacturing

Syenta

Jekaterina Viktorova, Prof Luke Connal, Zach Dowse, Ben Wilkinson, Zahra Azimi, Grishmi

Rajbhandari, Aswani Gopakumar, Andrew Simpson, Tiger Chen, Thanh Pham, Daniel de Waard,

Samuel Dietz

AUSTRALIA

- Syenta is transforming the electronics manufacturing sector, enabling multi-material 3D printing with its novel method and automated ink exchange.

// 2.500 EUR, Best Start-Up - AM Ventures Coaching

Jurystatement: "The Syenta 3D Printer will let educators and researchers create multi material electronics components through localized electrodeposition. We believe that this may over time lead to a democratization and resurgence in electronics hardware development. At the moment truly powerful electronics are usually hidden and inaccessible. Syenta could unleash a wave of innovation that would make electronics personal and accessible to many more inventors, creatives, scientists and the simply curious."

„3DPC2023 Winner Architecture“:

ImpactPrinting

ETH - Zurich

Gramazio Kohler Research (GKR), Chair of Sustainable Construction (CSC), Robotic Systems Lab

// (RSL), Dr. Lauren Vasey, Dr. Coralie Brumaud, Julie Assunção, Kunaljit Chadha, Grzegorz

Malczyk, Victor Leung, Ananya Kango

SWITZERLAND

- Impact printing is a novel, efficient, and sustainable robotic building method based on high-velocity discrete deposition using earth-based materials.

// 2.500 EUR, Autodesk Special Mention

Jurystatement: "This technology provides a fast technique for producing structures with soil and has the potential to reinvent the way we construct buildings sustainably, while also reducing CO2 emissions by 50% compared to low carbon concrete walls."



3DPC2023 Winner Mobility“:

Electric motors thought new - Hybrid AM electric motor housing with optimized cooling structure

ETH Zürich, inspire AG, Siemens

Urs Hofmann, Lorenzo Bono, Lea Kotthoff, Andrin Schmid, Sakin Sivakurunathar, Asbjorn Verlo, Johannes Vögerl, Julian Ferchow, Mirko Meboldt, Markus Schwaben, Rolf Vollmer, Felizitas Heilmann

SWITZERLAND

- This hybrid AM electric motor housing with optimized cooling structures enables higher efficiency and longer service life for electric motors.

// 2.500 EUR, Best industrial project - 3YOURMIND Software package, Autodesk Special Mention

Jurystatement: "This project has the potential to make a significant impact on the automotive industry through improved efficiency and sustainability. The collaboration between university and industry showcases the power of partnership in advancing technology for a better future."

AWARDS

The 3D Pioneers Challenge is one of the world's most prestigious competitions for innovation, additive manufacturing and cutting-edge technologies.

Winners could win prizes worth a total of more than €185,000.

The prize money of €35,000 is provided by the Thuringian Ministry of Economic Affairs Science and Digital Society.

The "Main Winner" won the "3DPC Trophy". The limited edition design object was created especially for the 3DPC in cooperation with Designer Ross Lovegrove, Hyperganic and Materialise.

Three winners won 3D printers from MakerBot (SKETCH Large), Asiga (Asiga MAX UV) and the newly launched Ultimaker S7.

As digital tools nTopology awarded two "nTop Full versions" software licenses for their engineering design software and the "Best Industrial Project" won the 3 month software package for the "on-demand manufacturing software" by 3YOURMIND.

For 2023 3DPC invented for the first time the "Best Start-Up": AM Ventures, supporters for start-ups in Additive Manufacturing, invites the winning team to a workshop. During the customised coaching by the experts, the winners will receive input on "Pitch Coaching", "Business Model" or "Scaling".

Long-time partner Autodesk recognizes excellence under the scope of „Special Mention by Autodesk Technology Centers“ by providing the opportunity for three winners to join the Autodesk Technology Centers Outsight Network - a global community of industry leaders, entrepreneurs, and researchers building future-focused technology.

Books by avedition, the publishing house for architecture and design, round off the prize packages.

The prizes and specials are selected with the partners of the 3DPC & Friends network to support participants in taking the best advantages for their projects.

EXHIBITION and AWARD CEREMONY

The award ceremony took place during Rapid.Tech 3D (9-11 May 2023, Messe Erfurt). The finalist and winning projects were exhibited at the 3DPC special area.

In addition to a broad information platform, Rapid.Tech 3D is also a creative meeting place for start-ups as well as for experts and industry giants of additive manufacturing. The high-class and strongly user-oriented congress is complemented by a trade exhibition on the additive process chain with suitable opportunities for networking and exchange, e.g. at various evening events or the 3D Printing Conference.



FOCUS 3DPC2023

RESILIENCE. NOW.

Advanced Technologies to enable a sustainable tomorrow.

Epic challenges surround us demanding social, ecological, economic and personal change. In those times it's creative pioneers who take a conscious, deep breath to rethink the status quo. Driven by a mindset that reflects, settles, and sorts everything, they focus on holistic solutions for a better now and tomorrow. **Let's be pioneers. Be resilient.**

We do need to converge and generate bridges focusing a sustainable transfer of that approach. Advanced technologies such as digital tools and additive manufacturing are key roles that enable transformation and innovation.

Jury 3DPC2023

Frank Beckmann_Fraunhofer IAPT
Prof. Christiane Beyer_Otto-von-Guericke University Magdeburg
Dr. Shajay Bhooshan_Zaha Hadid Architects
Stefanie Brickwede_DB, Mobility goes Additive
Bas de Jong_3YOURMIND
Lutz Dietzold_German Design Council
Stephan Galozy_3YOURMIND
Sarah Goehrke_Additive Integrity
Pia Harlaß_DyeMansion
Arno Held_AM Ventures
Dr. Karsten Heuser_Siemens Digital Industries
Thomas Hundt_Jangled Nerves
Dr. Cordelius Ilgmann_Thuringian Ministry of Economic Affairs Science and Digital Society.
Carina Lebsack_Adolf Würth GmbH & Co. KG
Marie-Lucie Linde_Sustainable Natives, nextblooming
Ulf Lindhe_Additive Manufacturing Business Innovator – Oqton
Ross Lovegrove_Lovegrove Studio
Dr. Cora Lüders-Theuerkauf_Medical goes Additive e.V.
Prof. Shlomo Magdassi_Hebrew University of Jerusalem
Alana Mongkhounsavath_Autodesk Technology Centers
Kristin Mulherin_Women in 3D Printing
Joris Peels_SmarTech Analysis, 3DPrint.com
Sonja Rasch_Materialise
Peter Rogers_Velo3D
Virginia San Fratello_Emerging Objects
Dr.-Ing. Sascha Schwarz_TUM Venture Lab Additive Manufacturing
Dr. Dirk Simon_FARSOON Europe
Matthew Spremulli_Autodesk Research
Joachim Stumpp_raumPROBE
Andreas Velten_IFA3D Medical Solutions
Christoph Völcker_Innovation Lab AM, Würth Elektronik

Partner 3DPC 2023

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About Rapid.Tech 3D

The Rapid.Tech3D is the future-oriented pioneering event of the AM scene at Messe Erfurt/Germany and took place from May 9th to 11th, 2023. The event offers a successful triad of specialist congress, exhibition and networking opportunities for the AM industry. 2023, 93 exhibitors have registered, coming from Germany, Israel, Canada, Austria and Poland, among others. In addition to established suppliers and users of industrial 3D printing technology and services, the Erfurt event also gives start-ups and innovative university projects a stage. In addition to a broad information platform, Rapid.Tech 3D is also a creative meeting place for start-ups as well as for experts and industry giants of additive manufacturing. The high-class and strongly user-oriented congress is complemented by a trade exhibition on the additive process chain with suitable opportunities for networking and exchange, e.g. at various evening events or the 3D Printing Conference. The Rapid.Tech3D is proud to offer the additive technologies 2023 a broad stage already for the 19th time.

About 3D Pioneers Challenge

The international competition for Additive Manufacturing processes and Advanced Technologies is the most prestigious award of its kind and is one of the most highly endowed worldwide. The annual announcement and presentation of the finalists is considered to be the innovation monitor of the industry. Unique in its structure, the competition has been addressing specialists who think outside the box since 2015 - **pushing boundaries!**

3DPC Platform

The Challenge has become a platform with a global network and is an interface for creative future-makers, pioneers of advanced technologies and innovators from research and industry.

„3DPC & Friends“

Under the umbrella of 3DPC & Friends, 3DPC brings together the creative minds and high-tech pioneers of the 3DPC platform in an interdisciplinary way, resulting in new, ground-breaking projects in which everyone can contribute and live out their expertise - design rethought! The 3DPC shows today what tomorrow will bring - **pushing boundaries.**

Contact Messe Erfurt GmbH:

Isabell Schöpe
Tel: +49 (0) 361 400 1350
i.schoepe@messe-erfurt.de
www.rapidtech-3d.com

Contact 3D Pioneers Challenge:

Simone Völcker
Tel: +49 (0) 711 658 44 99
info@3dpc.io
www.3dpc.io

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