

Press release

Additive World

Record number of contestants 2020 Design Challenge for 3D printing

Finalists in Professional and Student categories cover key applications

February 20, 2020 – Eindhoven (The Netherlands).

On Thursday, February 20, 2020, Additive Industries announced the finalists of the Additive World Design for Additive Manufacturing Challenge 2020. From a record number of 151 contestants, both professionals and students, 3 finalists were selected per category. “We are pleased to notice that amount of contestants from all around the world increased compared to last year by 25%. The designs are submitted from all over the world and across different applications fields including automotive, aerospace, medical, tooling and high tech. They all demonstrated how product designs can be improved when the freedom of additive manufacturing is applied. This year again many interesting potential business cases were spotted, where within both categories we saw major focus on the elimination of conventional manufacturing difficulties, minimization of assembly and lowering logistical costs.’ says Daan Kersten, CEO of Additive Industries.

This year, the professional category consisted again of many interesting, innovative designs. Nina Uppenkamp from SMS Group (Germany) demonstrated how media blocks, used as fluid-conducting components, can be designed for optimum flow, where both the space and size can be reduced because of additive manufacturing. Compared to a conventionally manufactured hydraulic valve block, her design brings significant efficiency gains because there is no need for plug screws also reducing the number of potential leaks. As a result of this, and by changing the material from cast steel to the AlSi10Mg aluminium alloy, a reduction of weight by 90% has been achieved. Another professional, Donatien Campion from 3DMedLab (France) shows how the expandable intervertebral cages, when metal 3D printed, can be advantageously used in the medical field. The motivation for this project was to overcome a strong limitation of material, but still imagining an innovative design, that might be beneficial for both patients and surgeons. 3D printing an expandable intervertebral cage as a single part, could minimize several risks during the medical procedure by reducing the part count and insertion of the device. Since this design is still a concept of an inspirational medical application, it will need more research before it can be used on patients. The third finalist of the professional category is last years’ winner of the Design Challenge, K3D from the Netherlands, together with Hitech Bihca, submitting a joint redesign of a laser welding head. By 3D printing the

laser welding head, multiple issues in the production environment were solved. This results in lower downtime, better welds, no damage to the laser or products, and a higher productivity.

In the student category this year we have also a medical application by Younes Chahid from BiomimeticAM with the Hip Implant Stem Design, from the University of Huddersfield (UK). With this redesign of the hip implant stem, issues with implant revision surgeries and bone resorption could be greatly improved. The new design of the hip implant stem has many such unique features including density and thickness distribution optimisation to reduce the stress shielding and increase osseointegration. The team SCUT Robotlab from South China University of Technology (China) improved the stabilizer mount on the robot for the RoboMaster competition, a key component which connects the mobile system with the upper projectile system. The original assembly consisted of 27 parts and weighed 295 grams. At this moment 42% weight reduction is achieved for one single part of the stabilizer, but by making an ultimate design of each robotics component more weight reduction is possible in the future. Samir Mulgaonkar from Sunriser (the US, California) made the Brake Caliper Design with an idea to improve the sustainability and emissions produced by cars through light weighting components. Extra energy is required to accelerate or decelerate excess mass of a car. Samir is looking to save energy by a generative design of the caliper where the weight of the caliper can be reduced by half.

This year we have one honourable mention in the professional category. This mention is for the Ducting Bracket from Aravinth Kamaraj, SPAREPARTS 3D (France). This ducting bracket is one of the most commonly used rail components across all the levels of ducting system, what makes the case study of Aravinth Kamaraj very relevant. The result of the case study shows that design freedom from additive manufacturing coupled with topology optimisation tool can make a big difference in the design and economics of product development phase compared to traditional manufacturing.

<End of press release>

Please find enclosed the redesigns of the finalists. Please add: source: Additive Industries.

The designs are (from left to right, first top row then bottom):

- “Laser welding head” from Jaap Bulsink, K3D Bihca (Netherlands, professional category)
- “Media block” from Nina Uppenkamp, SMS Group (Germany, professional category)
- “Expandable intervertebral cage” from Donatien Campion, 3DMedLab (France, professional category)
- “Hip Implant Stem Design” from Younes Chahid, BiomimeticAM (UK, student category)
- “Stabilizer mount” from Dong Zhang, SCUT Robotlab, (China, student category)
- “Brake caliper” from Samir Mulgaonkar, Sunriser (US, student category)

[More information](#)

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About Additive World

Additive World strives to connect the dots in industrial 3D printing. We want to create a platform to meet colleagues from your industry and experts in your field of use. To exchange insights, share experiences and accelerate the learning curve to a mature technology. Additive World is an initiative of Additive Industries.

About Design for Additive Manufacturing Challenge

In order to grow the number of examples and inspire many other industries to develop dedicated applications for industrial 3D printing, Additive Industries has launched the Additive World Design for Additive Manufacturing Challenge 2020 in October 2019. Competing in two categories, both professionals and students were encouraged to redesign an existing conventional part of a machine or product for 3D printing. The winners will be announced at the Additive World Conference Award Dinner on April 1, 2020 in Eindhoven.

About Additive Industries

Additive Industries is accelerating industrial additive manufacturing of high quality, functional, metal parts by offering a modular end-to-end 3D printing system including a seamlessly integrated information platform to high end and demanding industrial markets. With substantially improved reproducibility, productivity, and flexibility, Additive Industries redefines the business case for series production of additive manufacturing applications in aerospace, automotive, medical technology and high-tech equipment.