

PRESS RELEASE

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Patient Bonsai

During the “STEAM Imaging II” artist residency at Fraunhofer MEVIS, two artists from Singapore develop an interactive installation and participate in a youth workshop.

An entire tree with branches and leaves, yet as small as a potted plant: The bonsai standing inconspicuously in one of the conference rooms at the Fraunhofer Institute for Digital Medicine MEVIS represents a central element of an artwork called “In Vivo”. Behind this artwork are the young Singaporean artists Ernest Wu and Jake Tan. They are developing their interactive installation during the “STEAM Imaging” residency hosted by Fraunhofer MEVIS, Ars Electronica Center in Linz, and the International Fraunhofer Talent School Bremen. The installation will be presented next year at the Ars Electronica Festival 2020, one of the world’s most important events for art, technology, and society.

STEAM stands for the connection of science, technology, and mathematics with the world of art. The “STEAM Imaging” program enables artist residencies focused on connecting science with the approaches of digital art. Integral components include several workshops that aim at inspiring youth about the unusual alliance between art and science. This is the second residency hosted by Fraunhofer MEVIS and the Ars Electronica. In 2017, Taiwanese media artist Yen Tzu Chang developed a performance, where she addressed the future role of machines in surgery.

Jake Tan and Ernest Wu came together as an artist team for the first time for this residency, supervised by Assoc. Prof. Ina Conradi from the School of Art, Design, and Media at Nanyang Technological University Singapore. Tan integrates sensors and microcomputers in his installations, uses the possibilities of the virtual and augmented reality to talk about the relationship between man, machine and nature. Wu attempts to shed light on the transitional areas between life and death through the artistic means of photography and video installations. “In our installation, the bonsai is a metaphor for a patient in a coma,” explains Wu. “During our four-week residency, we examined, together with MEVIS experts, the bonsai with the help of an MRI scanner.”

Editor

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The artists' request presented a novel challenge for the researchers at MEVIS, who usually work on methods to improve MR imaging of human patients. Imaging plants was new to them. Several attempts were required until the artists were satisfied with the results. "We scanned the bonsai with different methods and could even see where it stores water after watering," says Tan. "We were very excited with the results and wanted to do more tests right away." After their four-week stay in Bremen, the artists will travel to Ars Electronica Center in Linz for another two weeks. There, they will transform their ideas into a physical installation. "The goal of the program is not only to explain the research and make it accessible for others. We want to facilitate the exchange between experts and both artists and younger generations, and integrate the residency as a dialog-oriented hands-on format of science communication," explains Bianka Hofmann, developer and producer in charge of science communication projects.

One component of the residency is a STEAM workshop that artists and scientists create together for youth in Bremen, Linz, and Singapore. "We want to inspire young people about the digital transformation in medicine in a new way," explains Hofmann. "To be better prepared for the future, young people have to increase their ability to think and work across disciplines. The goal of our workshop is to achieve exactly that." At the workshop in Bremen, students from the Walle school center took MR images of fruits and vegetables. They were able to create their own art installations using computer graphics processing as well as charcoal, sensors, and microcomputers. "We were particularly happy that students from vocational schools were able to participate," stresses Hofmann.

In recent years, Fraunhofer MEVIS has successfully developed various practical activities that facilitate the fundamental collaboration with art to promote younger generations. "We provide young people with insight into our work and give them the opportunity to develop software based on our MeVisLab platform," says mathematician Hanne Ballhausen, coordinator for MINT promotion and training. "This way, students learn about the practical benefits of informatics." One example is the "Digital Medicine in Informatics" education program funded by the Northwest Metropolitan Region that accompanies the advanced informatics courses at one school in Bremen and one in Delmenhorst for six months.

Fraunhofer MEVIS also offers a program for the annual "Girls' Day". Female students starting from the seventh grade come to the institute for an entire day. They receive information about the functions of an MR scanner and as well as the opportunity to experiment with images. "We want students to learn that informatics is more than nerds in front of a computer," says Ballhausen. "We show them that informatics can help achieve important tasks in medicine."

The success of the workshops is what motivated experts to apply them to other focus groups. "Studies have shown that parents and teachers have a great influence on young people," stresses Ballhausen. "We asked ourselves: why don't we host this sort of events for parents as well?" The idea is to show parents what advances people can achieve today with the help of informatics and mathematics. Hopefully, parents will then motivate their children to consider becoming engaged in these subjects.

The Fraunhofer Institute for Digital Medicine MEVIS

Embedded in a worldwide network of clinical and academic partners, Fraunhofer MEVIS develops real-world software solutions for image-supported early detection, diagnosis, and therapy. Strong focus is placed on cancer as well as diseases of the circulatory system, brain, breast, liver, and lung. The goal is to detect diseases earlier and more reliably, tailor treatments to each individual, and make therapeutic success more measurable. In addition, the institute develops software systems for industrial partners to undertake image-based studies to determine the effectiveness of medicine and contrast agents. To reach its goals, Fraunhofer MEVIS works closely with medical technology and pharmaceutical companies, providing solutions for the entire chain of development from applied research to certified medical products. www.mevis.fraunhofer.de/en.html

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