Office of STEM Education
UNIVERSITY OF GEORGIA

The Art of STEM
2017 Inaugural Competition

Art submitted by finalists for the inaugural 'Art of STEM' competition will be displayed in the Kellogg Concourse throughout the day. Conceived as an outreach tool, winning entries resonate with scientists and non-scientists alike. Following today's STEM Institute, these pieces of art will be displayed at the Science Learning Center on south campus.

Award of Excellence Recipient *3D Printed Brain*	Man Aw *With collaborators Rudy Montayre, Zion Tse, Michael Yoder* College of Engineering

We are demonstrating the processing of stereographical 3D printing of a human brain model from MRI scans. This combines the technologies of high-resolution rapid prototype for medical devices, bionics, and anatomical structures with 3D rendering and visualization of the detailed human nervous system.

This is important because of the advance in 3D printing allows neurosurgeons to perform preoperative rehearsal with the patient specific model before the procedure, which enable advanced planning of the surgical tool trajectory to avoid damages of critical structure.

3D printing enables low-cost and personalized training on medical procedures, improving the clinical accuracy and outcome by reducing potential human errors. 3D printing combined with high resolution medical imaging also allows fabrication of prosthesis devices that match the need of the patients.

Special Merit Award Recipient *Stomata Moon*	Jessica Gbur Psychology / Biology

This is a picture that looks like that of an image through a telescope of a distant planet, but actually is a microscopic view of a stomata cell from inside of a biology lab. This structure is critical to plants and their function and is a very underrated part of a plant's life. It's a pleasant image that is very monochromatic and could be calming in a science setting that shows that there is so much more than just surface level things in a college student's life.

Special Merit Award Recipient *Mycelial Mystery*	Alexander Mela *With acknowledgements to the CCRC and Dr. Maor Bar-Peled* Plant Biology

This work features a microscope image of a network of mycelia, or a mass of branches from the body of a fungus called Botrytis cinerea. All of the protrusions, indents, and outlines of the organism were captured using the software ImageJ. This work involves the utilization of different sugars to affect the development and morphology of economically and agriculturally important fungi; this species is responsible for 'noble rot', used in wine grape cultivation.

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Special Merit Award Recipient *The Irrational Genome*	Jorge Olivares College of Engineering
Irrational numbers are commonplace in science and mathematics despite their incomprehensible, infinite nature. One mysterious irrational number is Phi, the Golden Ratio, for its unexpected reoccurrences in nature. Chosen for its importance in both art and science, I wanted to design a new way to visualize this infinitely long number. Impossible for a single person to do by hand, I developed a program that drew a line for the first 100,000 digits of Phi. For each digit the figure grew unraveling into this beautiful unexpected form that materializes a difficult-to-visualize number. I hope the work may be both beautiful and explanatory of the nature of numbers, specifically the random endlessness of irrationals. Titled "The Irrational Genome" for its resemblance to DNA supercoils, also because it encodes the digits of Phi.	

Special Merit Award Recipient *Nanoroses of Lanthanum hexaboride*	Roshini Ramachandran Chemistry
This is the first such synthesized morphology of metal borides. Metal borides are incredibly tough, chemically robust, and high performance materials which makes their nanostructuring very challenging. However, we have been able to synthesize nanosheets of lanthanum hexaboride using an innovative synthetic methodology. Here, we demonstrate nanosheets and platelets of lanthanum hexaboride that aggregate during sample preparation to form these unique and beautiful "nanoroses".	

To learn more about the inaugural 'Art of STEM' competition, and to view all of the wonderful entries, please visit www.ose.uga.edu/projects/art.