

CASMART 4th Student Design Challenge Held Virtually

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The Shape Memory and Superelastic Technologies Society (SMST) teamed with CASMART, the Consortium for the Advancement of Shape Memory Alloy Research and Technology, for their 4th Student Design Challenge held virtually this year due to the postponement of SMST2021.

CASMART, initiated in 2007, has a membership that consists of academics, industry professionals, and government researchers dedicated to promoting the growth and adoption of shape memory alloy (SMA) actuation technologies by achieving new understanding of materials, fostering dissemination of technical knowledge, and facilitating application of that knowledge.

The student design challenge is intended for undergraduate and/or graduate students to consider innovative approaches to developing new materials and hardware using SMA technology. Students had the opportunity to showcase their creativity by applying engineering theories and design principles and leveraging CASMART and SMST members' experience to address SMA design challenges in aeronautics, astronautics, the medical industry, energy, and other topics.

The virtual competition was held May 17–20, 2021, with five participating teams:

- **“Return of the MAC”** (Texas A&M University): John Broucek, James “Trey” Royalty (Advisors: William Trehern, Dr. Ibrahim Karaman)

- **“SMAlloygator”** (Iowa State University): Madison Harrington, Elizabeth Krotz, Alana Pauls, Edward Wagner, and Jonathan Zaugg (Advisors: Dr. Jun Cui, Dr. Shraddha Vachhani)
- **“Heavy Metal”** (University of North Texas): J. Eli McCool, Neha S. John, Jessica Rider, and Jordyn M. Ward (Advisor: Dr. Marcus Young)
- **“SmartGrip”** (Universität des Saarlandes): Dominik Scholtes, Carmelo Pirritano, and Andre Schieler (Advisors: Dr. Paul Motzki, Dr. Stefan Seelecke)
- **“SMAUG”** (Texas A&M University): Sharon Pearl-nath, Jacob Spurgers, Brandon Tong (Advisors: Nathan Hite, Dr. Ibrahim Karaman)

The winners received certificates and a team trophy as well as the opportunity for members of the team to present their work at SMST2022. This year's winning teams were:

Hardware Design: SmartGrip (Universität des Saarlandes) for “Development and Realization of an Energy Efficient, Silent and Light-Weight SMA-Based Pick and Place System for Industrial Applications”

Material Design: SMAlloygator (Iowa State University) for “High-Throughput Development of Elastocaloric Materials”

The 5th Student Design Challenge will return to SMST2022 to be held May 16–20, 2022, at the Westin Carlsbad Resort, San Diego, California. For more information and to register a team, go to <https://www.asminternational.org/web/smst-2022/home>.

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