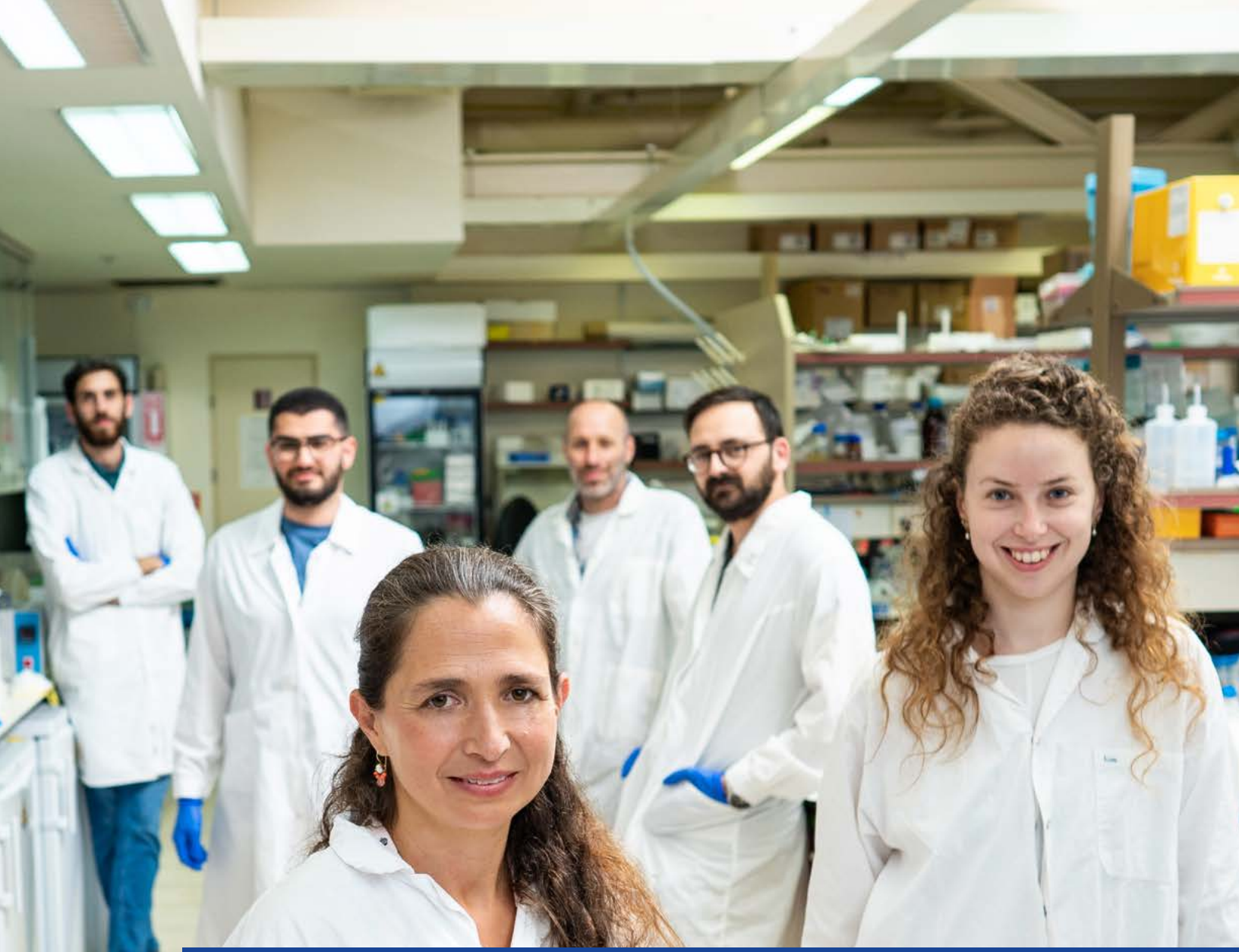


AMERICAN TECHNION SOCIETY

TECHNION FUND **REPORT**

FISCAL YEAR 2020

Thank you for your generous support of the Technion Fund.

When you donate to the **Technion Fund** you join thousands of like-minded individuals across the U.S. who know that the Technion, Israel's first university, is the key to advancing the State of Israel, and contributing to the global good.

The **Technion Fund** supports priority research areas ranging from medical innovation to security, and is designed with the flexibility to direct resources where they are needed most.

TECHNION BY THE NUMBERS

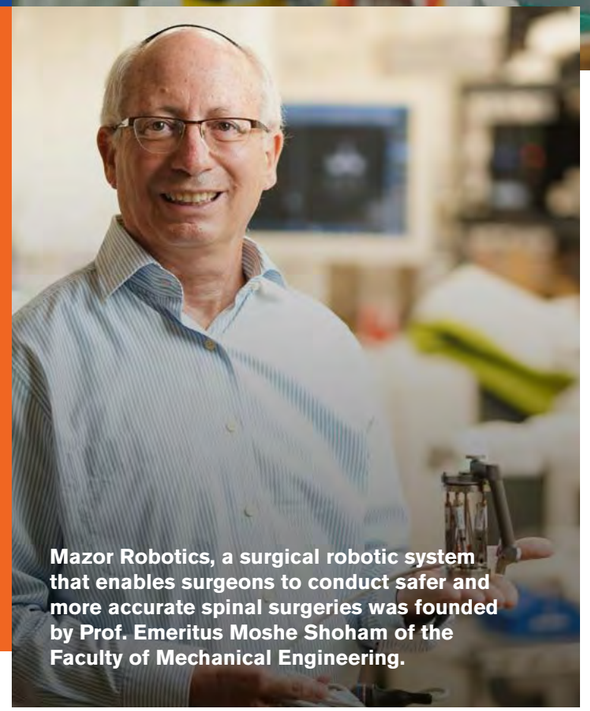
Founded in **1912**
Classes started in **1924**

120,365 Degrees Awarded
50 Undergraduate Programs
83 Graduate Programs

566 Faculty
14,734 Total Students
10,174 Undergraduate
2,873 Master's
1,158 Ph.D.
529 Medical

60 Research Centers
18 Faculties

With non-profit organization Haifa3D, Technion students are designing and manufacturing customized free prosthetic hands for children. Prof. Alon Wolf, head of the Technion's Biorobotics and Biomechanics Lab *(L)* **and Graduate student Yair Herbst** *(R)*.



Mazor Robotics, a surgical robotic system that enables surgeons to conduct safer and more accurate spinal surgeries was founded by Prof. Emeritus Moshe Shoham of the Faculty of Mechanical Engineering.

TECHNION FUND PRIORITY AREAS

BIOMEDICINE

The Technion is one of the few science and engineering institutes in the world with its own medical school. That distinction is evident in the many breakthroughs coming out of the Technion in areas ranging from cancer to coronavirus research.

» Technion scientists found ingenious ways to **disinfect and reuse the most effective N95 coronavirus protective masks**. In one method, an additional layer of carbon fibers sterilizes the masks with heat powered by a device as simple as a phone charger. Another project works by continual recharging of the masks' electrostatic filtering.

» Professor Daphne Weihs developed a novel biomechanical **technology that determines** *(within two hours)* **whether a tumor is cancerous and its likelihood of metastasis**.

» Professor Lior Gepstein developed **3D engineered cardiac tissues** that simulate a specific patient's irregular heartbeat. The breakthrough could lead to personalized medications and implants for cardiac patients.

DEFENSE

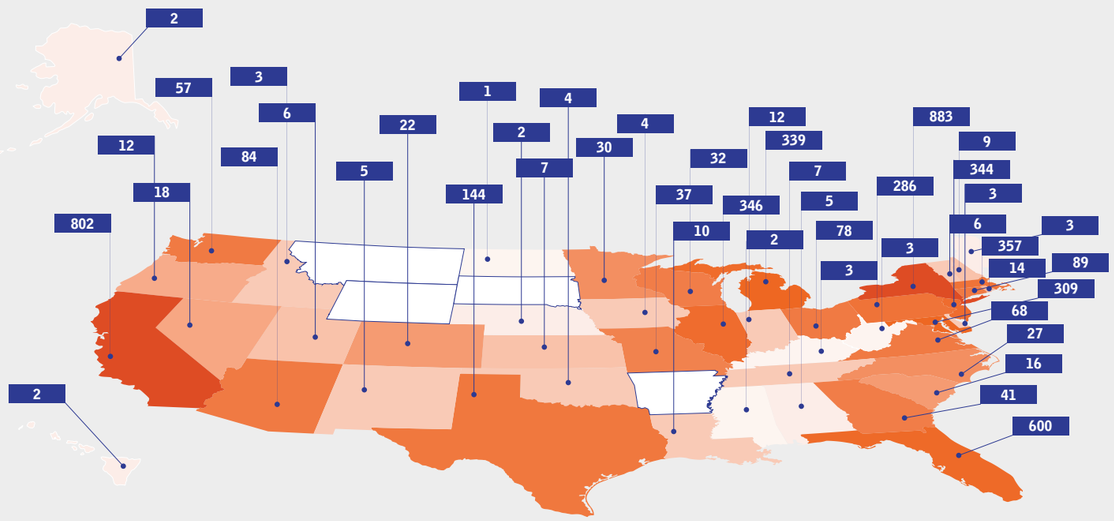
The Technion has helped Israel become a world leader in technologies that keep its citizens safe. Home to Israel's only faculty of aerospace, the University trained many of the engineers behind Iron Dome, and has created technologies used to combat cyber terrorism, as well as innovations used on the battlefield.

» Technion researchers in collaboration with Israel Aerospace Industries are creating a system for the ADELIS-SAMSON satellite mission that can **locate distress signals on Earth for search and rescue missions**, and also provide environmental monitoring.

» Technion aerospace and electrical engineers recently developed **software that monitors a plane's trajectory to determine if it is losing altitude**, and selects a safe landing strip.

» Technion-founded Cortica is repurposing its AI-powered Corsight facial-recognition **technology to recognize and protect individuals in medical face masks** during the pandemic.

TECHNION FUND DONORS
BY STATE



STUDENTS

Students are the lifeblood of any university. It is the students who inspire us, who provide hope for a better tomorrow. Year after year, the Technion attracts a diverse mix of students from the top of their class. Technion students excel academically, and in their commitment to engage in *tikkun olam*, which repairs the world. With support from the Technion Fund, the Technion provides opportunities for students to showcase their excellence.

» This year's project exhibition for biomedical engineering students required students to present meaningful solutions to real-world problems. Lidan Fridman won for her **technology to diagnose early-stage hearing loss** with a system that uses high-resolution images of vibrations of the tympanic membrane. Other students developed projects to predict epileptic seizures, track the mood of cancer patients, and prevent sudden death in athletes.

» Students of Professor Alon Wolf's Biorobotics and Biomechanics Lab are working with the non-profit Haifa3D to design and manufacture **prosthetic hands for amputee children** in Israel and beyond. The free, 3D-printed hands are customized to resemble Superman, Ironman, Spiderman, and other superheroes, giving children the confidence to catch a ball and do other simple tasks.

FACULTY

Faculty recruitment remains a top priority. Universities now face competition from private industry, making it even more critical to outpace each other and companies. The Technion Fund helps attract top-notch faculty and ensure the Technion's edge as a leading scientific institution. The Technion brought on board at least 34 new faculty members for the academic year starting October 2020, and many Technion researchers won prestigious honors this past year.

» **Professor Ilan Marek** won the 2020 Cope Scholar Award from the Chemical Society and was elected to the Israel Academy of Sciences and Humanities

» **Professor Emeritus Moshe Shoham** won the Maurice E. Müller Award for Excellence in Computer Assisted Surgery

» **Assistant Professor Meytal Landau** won the Israel Society for Biochemistry's 2020 Hestrin Award for her pioneering work on bacterial amyloids, which has applications for combating antibiotic resistance.

» **Assistant Professors Tomer Michaeli** and **Yuval Filmus** for their work in electrical engineering and computer science, respectively, were awarded the Wolf Foundation 2020 Krill Prize for Excellence in Scientific Research.

The development of the world's first system using solar energy to split water into hydrogen and oxygen at separate sites was led by master's student Rawan Halabi *(R)* **and Avigail Landman** *(L)***, who has since earned her Ph.D. The research was supported by the Grand Technion Energy Program and ATS donor Ed Satell.**

SUSTAINABILITY

Israel has long been a leader in environmental sustainability, thanks to the Technion. Researchers at the Stephen and Nancy Grand Water Research Institute have developed much-needed water technologies and methods of resource management, and continue to advance research in areas of alternative energy, food scarcity, and more.

» Capturing hydrogen from water molecules is the most **promising frontier in clean energy**. Hydrogen fuel can power electric cars and more. Technion researchers improved the process and continue its development in their startup H2PRO, a 2020 Shell Energy Challenge winner.

» Technion researchers have patented an innovative technology to **remove the carcinogen formaldehyde** (one of the most problematic pollutants in our environment) **from water**.

» As the coronavirus pandemic shutters meat packing facilities, **lab-engineered steak** is more important than ever. Professor Shulamit Levenberg's work in the field led to the founding of Aleph Farms, named among the world's top five cultured meat companies.

ENTREPRENEURSHIP

To prepare the leaders of tomorrow, the Technion is establishing an entrepreneurship and leadership curriculum to provide students with more experience and critical skills. The new program builds on t-hub, the University's center dedicated to entrepreneurship and innovation, and on a long history of scientist-entrepreneurs.

» Professor Yuval Shaked's company OncoHost opened a first-of-its-kind proteomics laboratory to **predict a patient's responsiveness to cancer therapy** and discover new methods for overcoming drug resistance.

» Researchers in more than 50 labs across the Technion campus harnessed their expertise to **combat the coronavirus pandemic**. In one of many successes, Professor Eyal Zussman created the Maya sticker, which significantly boosts the efficiency of surgical masks and is in production in Israel.

INTERNATIONAL COLLABORATIONS

International collaboration fosters innovation for the good of mankind, a point illustrated clearly at the Joan and Irwin Jacobs Technion-Cornell Institute in New York City and the Guangdong Technion Israel Institute of Technology. Creative ideas spring from the blending of different personal and academic backgrounds. And partnerships like that of the Mayo Clinic and Technion-founded Diagnostic Robotics carry the Technion impact globally. The Technion continues to lead with influential collaborations around the globe.

» A clean energy initiative between the Technion and the **University of Connecticut**, established by Technion Guardian Ed Satell, which could advance the commercialization of hydrogen fuel cells.

» DeepSTORM3D, a super-resolution microscope that could give biologists their first 3D view inside cells, developed by Professor Yoav Shechtman and other Technion researchers, with support from the **European Commission for Research, Google, the National Science Foundation, and the Mortimer B. Zuckerman Foundation**.

Learn More About the Latest Technion Breakthroughs

Visit ats.org/impact today.

Join us for our Live From Technion webinars and local Interactive Virtual Events.

These events feature presentations designed to help inform and inspire our community in this time of uncertainty. While we cannot currently gather in person, we hope you will take an hour out of your day to join us and hear about the great research coming out of the Technion made possible by donors like you.

Visit ats.org/events to save your spot.

Cover Photo:
Professor Na'ama Geva-Zatorsky of the Ruth and Bruce Rappaport Faculty of Medicine at Technion - Israel Institute of Technology is a principal investigator in her laboratory in the Rappaport Technion Integrated Cancer Center (RTICC). She typically studies the interaction of gut microbes and the host immune system in health and disease, but switched gears at the start of the pandemic, developing an at-home test kit that uses saliva samples and can detect COVID-19 in under an hour.

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