

PRESIDENT'S REPORT

2018

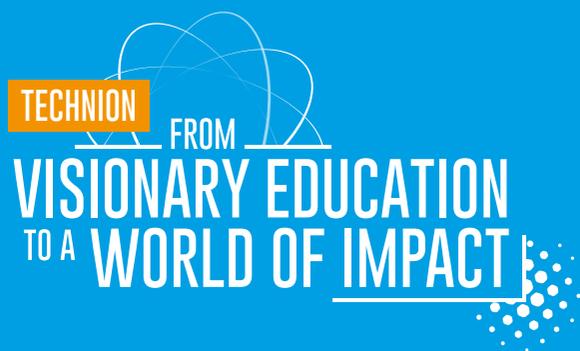


“from Jaffa to Java”

TECHN7ON

“from Jaffa to Java”

Technion celebrates over 70 years
of Israeli innovation



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Cover quote:
Technion Alumnus Yossi Vardi

{ **CELEBRATING ISRAEL AT 70** }

TECHNION



Technion Prof. Marcelle Machluf,
Dean of the Faculty of Biotechnology and
Food Engineering lights the torch at the official
ceremony honoring the State of Israel at 70.



The Jaffa orange, perhaps best known as Israel's first export to the Western world.

Israel: the garden of innovation

“From Jaffa to Java”

or, how a developing country became a developed country in half a century, and positioned itself as a world leader in new technologies in just 70 years.

{ Cesária Évora / **“PETIT PAYS JE T’AIME BEAUCOUP”** }



In the beginning there was a need: a need to take a barren, historic homeland and make it bloom; a need to rebuild the Jewish homeland and create a better future for its people. For over a century, Technion has provided the spirit of innovation that responds to the need: anticipating the problems of tomorrow with pioneering solutions born out of an infinite source of potential.

Often cited as father of the Start-up Nation, Technion alumnus and serial innovator Yossi Vardi was first to describe Israel's meteoric ascent into the community of prosperous nations, coining the term: from Jaffa to Java.

“People here are daring, willing to try, to sacrifice their best years in order to build something meaningful,” he said in honor of Technion's cornerstone centennial. “If you look at the history, Israel was always a start-up nation. A bunch of people came to this part of the world 120 years ago when nothing was here: Israel was a start-up; the kibbutz movement was a start-up; and Technion was a start-up. If you look into the virtues of Israelis you see that our main advantage is to come with an idea from an empty chaos, to create proof of concept and to build around the beginnings. If there had been no Technion, I think we wouldn't have the kind of technological infrastructure or high-tech industry of today. Everything started in the Technion.”



EDUCATION

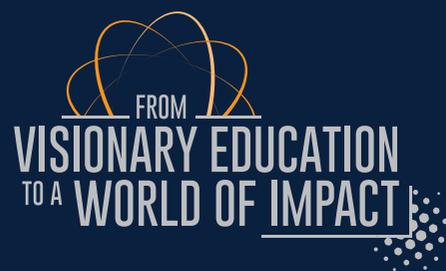
Degrees of Technion

Technion is the first non-US university to award degrees in the United States through the Jacobs Technion-Cornell Institute at Cornell Tech in New York City.

This year, Israel celebrates 70 years of independence. At Technion, independence is a vessel that enables innovation to express itself in the world of real commodities.

Independence is that which allows our scientists, students, and visionaries to think freely to delve into the unknown, unfettered by fears of survival or the terror of failure. This scientific independence is what has made Technion a partner in a new innovation paradigm, in which industry, researchers and visionaries join together with the objective of creating a better future.

(L-R): Cornell President Martha E. Pollack; former New York City Mayor Michael Bloomberg; Technion President Peretz Lavie; Chair of Cornell University Board of Trustees Robert Harrison at the ribbon-cutting ceremony at Cornell Tech on Roosevelt Island in September 2017.



{ **FROM THE PRESIDENT** }

The Technion cornerstone ceremony took place 36 years before the establishment of the State of Israel, in 1912. At the time, pioneering visionaries were determined to fight prejudice by creating a technical institute that would accept all qualified students regardless of gender or culture. From its earliest days, Technion played a key role in laying the foundations of a nation - educating the skilled workforce that would literally build the country.

In 2018, Technion continues to be a global trailblazer. We are proud that, according to a recent worldwide survey, Technion has been named the world's leading academic institution in preparing students to take top positions in the digital revolution.

Moreover, the recent inaugurations of Cornell Tech in New York City and the Guangdong Technion- Israel Institute of Technology in China consolidate Technion's global impact and empower a new kind of academic independence - an independence beyond the limitation of national boundaries.

On the dawn of Israel's eighth decade, Technion is as committed as ever to serve the State of Israel and all of humanity. To realize this vision, I am pleased to announce the launch of the Technion World Wide Campaign, with a goal to raise \$1.5 billion by 2024 - the year we will celebrate the centennial of Technion's first incoming class. This campaign is ground-breaking, due to its unprecedented scope in Israeli academia. The funds raised will be used for upgrading infrastructure and research activities, as well as for faculty recruitment, and will essentially ensure the next 100 years of Technion.

In the past year, we made great progress implementing the Master Plan to upgrade the physical campus. The building boom is underway with the completion of the David and Janet Polak Visitors Center; the renovation of the Ullmann Building, the new gates to the campus. We will soon start work on new wings for the Faculties of Electrical Engineering, Materials Science and Engineering, and Architecture and Town Planning. In addition, we are planning an additional building for the Rappaport Faculty of Medicine as well as new student dormitories.

We recently announced a \$50 million naming gift from the Helen Diller Family Foundation to support the university's new state-of-the-art quantum center. The center will be named the Helen Diller Center for Quantum Science, Matter and Engineering and will strengthen the university's position as a world leader in quantum science and engineering.

Unfortunately, alongside the many uplifting accomplishments of the past year, we have also been struck with a succession of sad news. Technion - and I personally - mourn the loss of three of our dearest friends: Ruth Rappaport, Peter Munk and Sanford Diller. May their memories be a blessing.

Herzl said, "If you will it, it is not a dream." In recent years, our slogan was, "Dream it. Do it." To do it, we needed that first cornerstone in 1912. To do it, we needed that declaration of independence 70 years ago in 1948. Out of the foundations we lay today, the power of innovation will continue to flow through the laboratories, lecture halls and campuses of all that is Technion.

Peretz Lavie



Benjamin Disraeli / "Upon the education of the people, the fate of this country depends"

A JEWISH STATE IS BORN



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VOL. XXIII, No. 4114

JERUSALEM
MONDAY, MAY 14, 1948

STATE OF ISRAEL IS BORN

Most Crowded Hours in Palestine's History
Between Thursday night and this morning Palestine went through what by all standards must be among the most crowded hours in its history.
For the Jewish population there was the anguish over the fate of the few hundred Hagdush men and women in the Kfar Etzion bloc of settlements near Hebron. Their orderly surrender to a fully equipped superior foreign force, perately in need of a victory, was a foregone conclusion. What could not be known, with no communications since Thursday morning, was whether and to what extent the Red Cross and the Truce Comsuls would secure civilized conditions for prisoners and wounded, and proper respect for some of these anxious questions.

At the same time, President Truman announced that the United States would accord recognition to the new State. A few hours later, Palestine was invaded by Moslem armies from the south, east and north, and Tel Aviv was raided from the air. On Friday the United Nations Special Assembly adjourned after adopting a resolution to appoint a mediator but without taking any action on the Partition Resolution of November 29.
Yesterday the battle for the Jerusalem-Tel Aviv road was still under way, and two Arab villages were taken. In the north, Acre town was captured, and the Jewish Army consolidated its positions in Western Galilee.

JEWS TAKE OVER SECURITY ZONES

The Battle for Jerusalem, which began when the British forces withdrew on Friday morning, continued all day Friday and yesterday. The crackle of small-arms fire and explosions of mortar shells were still being heard in the early hours of this morning as the battle entered its third day.
Repeated efforts on Friday evening and again on Saturday by the U.N. Truce Comsuls to bring about a "cease fire" were brought to naught when the Arab representatives failed to agree

Egyptian Air Force Spitfires Bomb Tel Aviv; One Shot Down

Nel Israel, the Tel Aviv broadcasting station, reported that Tel Aviv had been bombed three times in the previous evening and morning, and that one plane had been shot down and its Egyptian pilot taken prisoner.
In the first raid, four planes attacked from a height of 200 feet. Two dropped bombs, while the others strafed the city. Little damage was done. In the second attack two bombs hit the airport in the hours later. The third raid, north of the city was headed off by an Air Force plane which had been damaged. The

U.S. RECOGNIZES JEWISH STATE

WASHINGTON, Saturday.—Ten minutes after the termination of the British Mandate on Friday, the White House released a formal statement by President Truman that the U.S. Government intended to recognize the Provisional Jewish Government as the de facto authorities representing the Jewish State.
The U.S. is also considering lifting the arms embargo but it is not known whether in Palestine or in the entire Middle East, and the establishment of diplomatic relations with the Jewish Provisional Government.

Proclamation by Head of Government

The creation of "Medinat Yisrael", the State of Israel, was proclaimed at midnight on Friday by Mr. David Ben-Gurion, until then Chairman of the Jewish Agency Executive and now head of the State's Provisional Government.



The first act of the Government, as announced by its head, was in a White Paper of the State's Executive Power, particularly representation in all municipal organs of the State.
Mr. Ben-Gurion, in his declaration of independence, Mr. Ben-Gurion, on the Arabs of Palestine, to restore their rights and to ensure their full representation in all municipal organs of the State.
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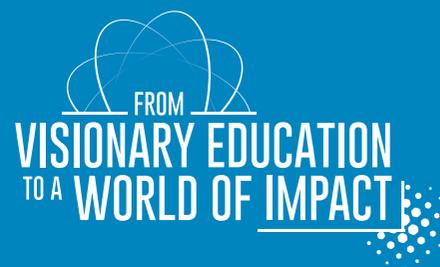
EDUCATION

TECHNION

70 years ago, the State of Israel was born, but this wasn't the end of Technion's work, rather the start of a whole new challenge. Never before did the fate of a nation rest so unequivocally on the education of its young people. Israel needed infrastructure, medicine, water and energy. It needed innovators, decision-makers and entrepreneurs. For all of this, the people looked to Technion.

"An Institute of Technology of a high level is one of the most vital needs of the State of Israel at this time," said Prime Minister David Ben Gurion. "We are a small, poor people; our country is largely desolate; we are surrounded by hostile nations who threaten our existence. We are compelled to create, at an unprecedented rate, sources of livelihood for masses of our brethren who are returning to their homeland... For these great and difficult tasks we must call on the aid of the latest achievements of both pure and applied science and the most advanced improvements of technology."

Technion was fast to meet the urgent needs of the fledgling nation, turning out top-quality engineers at vast speed. Yet Israel's Institute of Tech-



nology was at the same time firmly rooted in the future. Reaching for the skies in 1949, Technion recruited Prof. Sydney Goldstein from Manchester University to chair Israel's first department of Aeronautical Engineering. Within a decade, Technion had vastly expanded, leaving the original building in midtown Hadar to serve the young State of Israel and the world from the upper slopes of Mount Carmel.

At Technion, the fulfilment of a need is the starting point. The core of Technion power comes from vision - the vision to create a better future. This is a place where your imagination gets to work; where you are part of the global dynamo of reinvention - where everything is possible.

DIGITAL EDUCATION

Janusz Korczak / "The one who cares for the future, plants wheat. The one who cares for the years to come, plants trees. The one who cares for future generations, educates people."


FROM
VISIONARY EDUCATION
TO A **WORLD OF IMPACT**

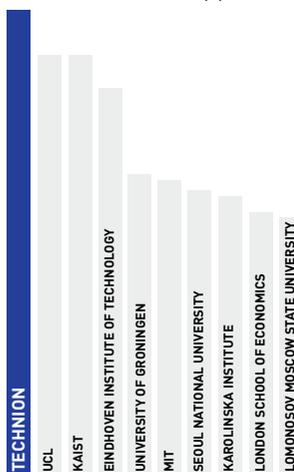
{ **DIGITAL EDUCATION** }

EDUCATION

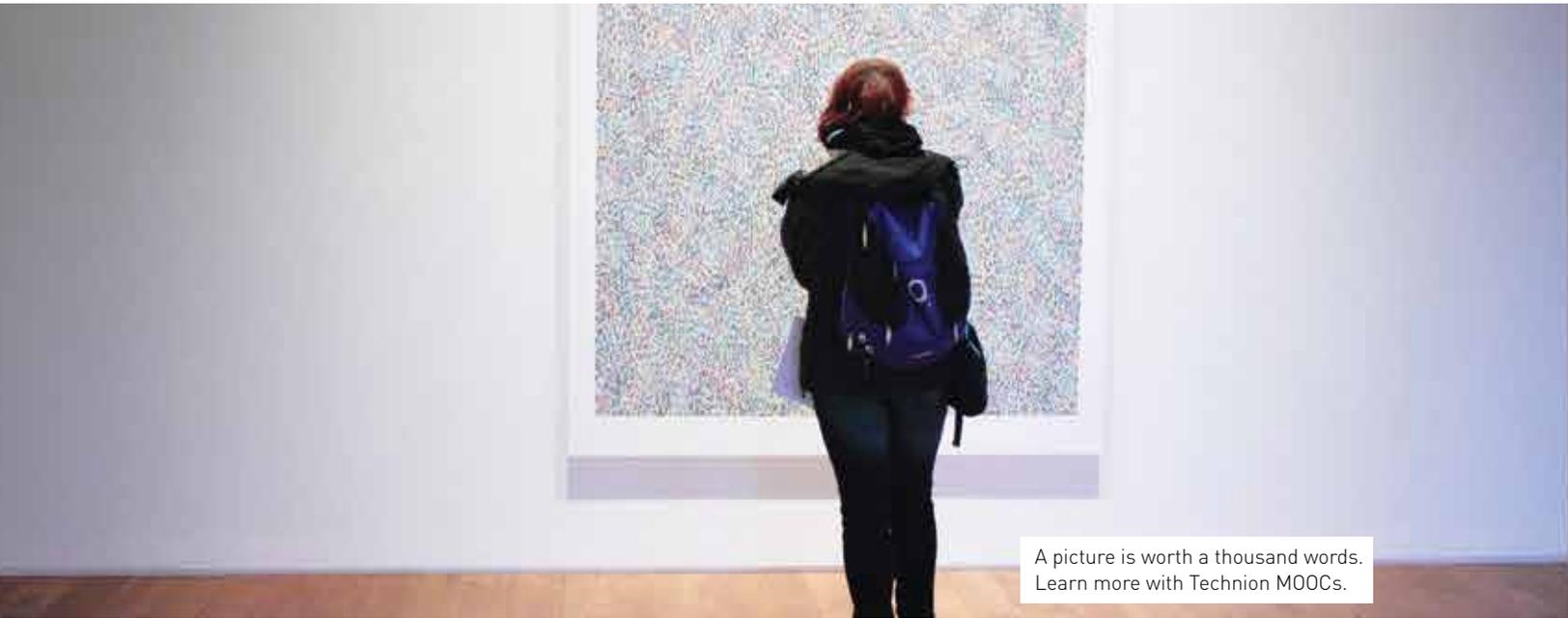
TECHNION RANKED N°.1 WORLDWIDE FOR LEADERSHIP IN DIGITAL EDUCATION

DIGITAL 1ST

From medicine to banking, through to agriculture and communications, the digital revolution is transforming all fields of life. Just as academic institutions worldwide wake up to the fact that the education of students with the latest digital skills is a direct function of success, Technion has been named by a *Times Higher Education* survey as the top institute worldwide in inculcating digital skills. "This is a badge of honor for Technion," says Technion President Prof. Peretz Lavie. "In recent years, Technion has placed considerable emphasis on training its students to meet the changing needs of the digital revolution. Advanced learning technologies are being implemented, including the introduction of MOOCs – Massive Open Online Courses – in various languages – and the development of the flipped classroom approach, which emphasizes self-study using state-of-the-art technology."



In the recent *Times Higher Education* survey, representatives of global leading companies were questioned on required skills to succeed in today's labor market. The survey compiled a list of top academic institutions for providing the best digital skills, ranking Technion first.



A picture is worth a thousand words.
Learn more with Technion MOOCs.

MOOC it Up

EDUCATION

Technion is actively pursuing the liberation of information and access to knowledge worldwide.



Alexander Graham Bell / “Educate the masses, elevate their standard of intelligence, and you will certainly have a successful nation.”



Often equated to the revolution sparked by Gutenberg's printed word, the MOOC is providing worldwide access to the most advanced ideas fueling human progress.

"This is part of going global. All the best universities are there," explains Ronit Lis-Hacohen, Managing Director of the Technion International School. A MOOC (Massive Open Online Course) is not a repetition of the traditional class given in the lecture hall, but a whole new form of education, she says. MOOCs have a dual impact - not only online, but also on traditional teaching methods. Increasingly, the online course brings focus and precision to course conceptualization, while students have the option of studying in and around their term-time activities.

There is even the possibility, demonstrated by Prof. Danny Levine, to flip the classroom: giving the MOOC as homework, and leaving the space of direct interaction with students in person for problem-solving, discussion

and in-depth exploration of the subject matter. "It works perfectly and the average grade rises," says Lis-Hacohen.

An exciting MOOC recently launched is given by Prof. Michael Elad on Sparse Representation Theory ("Sparseland"). The first session presents basic theoretical ideas of sparse representations, and the second connects this model to applications in image processing.

Prof. Elad of the Computer Science Faculty, has made sharp inroads into the emerging field of Deep Learning together with his dynamic graduate team. Last year they introduced unprecedented theoretical foundations to the field of Deep Learning, explaining many of the important aspects of multi-layered neural networks.

“IT’S LIKE FALLING IN LOVE”

“Next time you want them to remember, give them something to feel.”

Science on stage

EDUCATION

Technion Nobel Laureate Distinguished Prof. Dan Shechtman once said: “I aspire to inspire before I expire.” There is no coincidence that the pioneer of a whole new form of matter, is also a pioneer in education, with a strong emphasis on the kind of education that leads to innovation. Inspiration has a direct link to excellence in both education and innovation, and at Technion in February 2018, Alan Alda inspired a packed Churchill Auditorium on the causal imperative of effective communication on matters of science and technology.

Best known as Captain Hawkeye Pierce from the hit 1970s television series *M*A*S*H*, the actor Alan Alda conducts seminars all over the US to help scientists improve the way they ex-

plain their work to other people. Many of the techniques Alda uses to teach communication, such as improvisational theater, are rooted in his acting career, and his talent as an actor was also clearly on display during his lecture. Alda, who is 82, had no problem holding the attention of the crowd in the large auditorium despite the lack of PowerPoint slides, proving that he is indeed a master of communication.

During the hour-long lecture, Alda compared interest in science to the three stages of falling in love (which he invented): attraction, infatuation and commitment. If scientists are able to connect to their listeners in such a way that they achieve commitment and an emotional bond, the listeners will remain engaged in the long-term. Since these are skills



“RELATING IS EVERYTHING”

“He watched me to see if I got it. He created a bond between us, an open channel; he wanted me to understand. That’s real communication.”

AA recalls as he reflects on the Chilean doctor who saved his life doing an operation he had done dozens of times on *M*A*S*H*

“Every scientist has an interesting story. They just need to learn how to tell their story so that others will understand and remember.”



Alan Alda



Alan Alda and Zuckerman fellows

that everyone can learn, Alda believes that every scientist can be trained to effectively communicate even the most complex information to a lay public.

Alda came to Israel along with a delegation from the Alan Alda Center for Communicating Science at Stony Brook University in order to teach science communication at Technion,

in partnership with the Zuckerman STEM Leadership Program and the Kavli Foundation. Under the auspices of the Zuckerman Institute-Alda Center Scholars Project in Israel, Technion scholars participated in a two-day workshop led by Alda Center facilitators and researchers. A second two-day seminar, sponsored by Kavli, was open to Technion faculty members.

EDUCATION WITHOUT BORDERS

EDUCATION

The Lalibela group of the Technion Chapter of Engineers Without Borders took part in a mud construction workshop in the Ramon Eco Center in Mitzpe Ramon, during which they built and tested different models of rocket stoves. The Lalibela group is working on developing a new type of a sustainable stove for the Meskele Kristos community in Ethiopia, which will significantly reduce the pollution emitted by the traditional stoves and thereby improve the health of the community members.

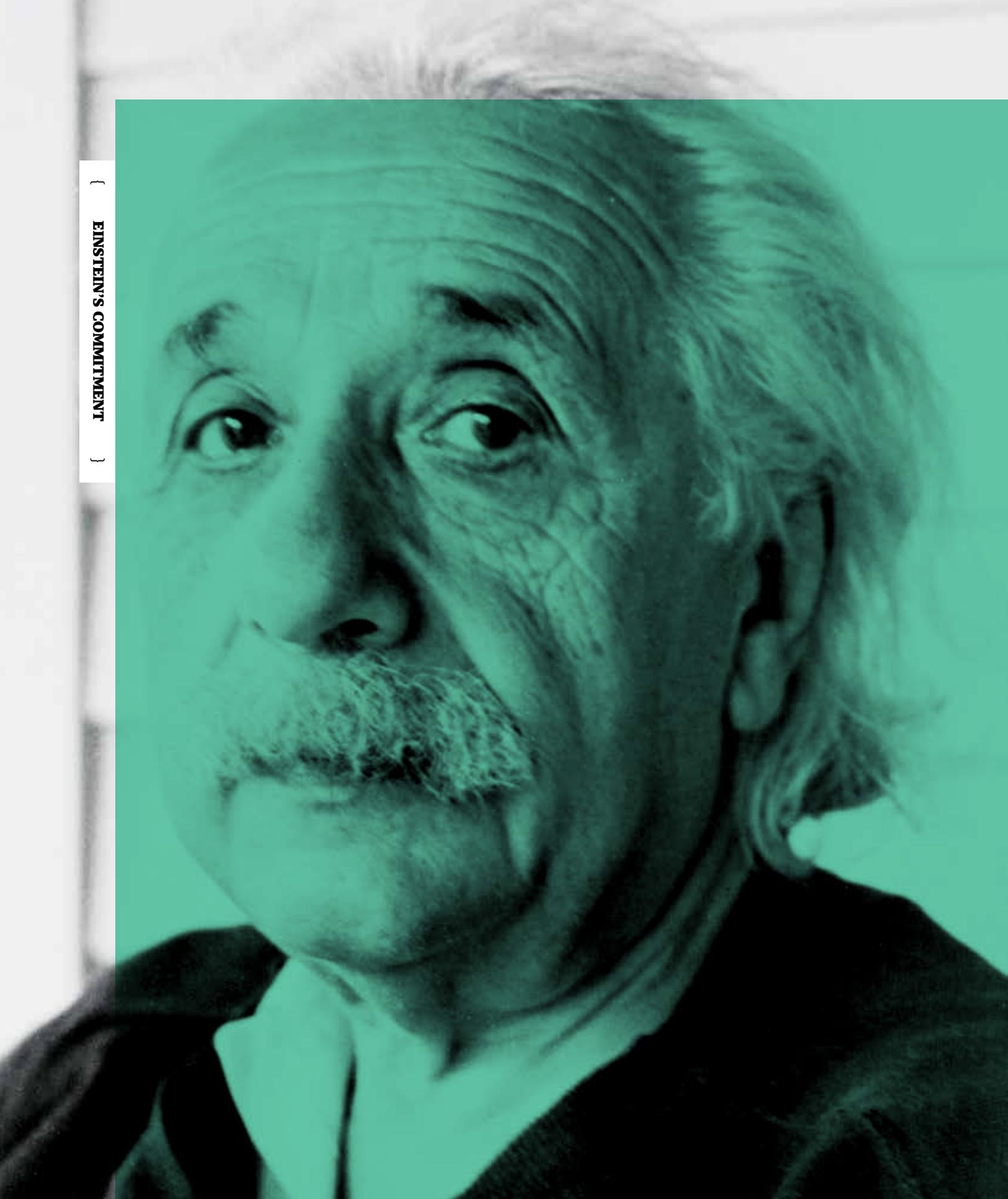


EWB





{ EINSTEIN'S COMMITMENT }



RESEARCH & DISCOVERY

TECHNION

Israel: the paradox

How will the new-born state protect and sustain itself? Albert Einstein / “through the development of science and technology”

AE / “I have seen with great satisfaction how the Technion has been indispensable to Israel’s agriculture, industrial development, economic growth and national security. Its engineers, scientists and architects have literally built the State of Israel.”



The Quantum Advantage

RESEARCH & DISCOVERY

On Israel's 70th anniversary the Helen Diller Center for Quantum Science, Matter and Engineering was born at Technion. A \$50 million gift from the Helen Diller Family Foundation affirms Technion's global leadership in quantum science, matter and engineering.

{ **THE QUANTUM ADVANTAGE** }



he Helen Diller Center is the first of its kind in Israel and is uniquely poised to advance basic sciences while using the principles of quantum mechanics to impact various engineering fields, and to develop applications for a range of industries. Research will focus on quantum computing and information processing; quantum communications; quantum sensing and detection; quantum simulations; simulators and quantum materials. The Center will also be a quantum hub for interdisciplinary collaboration.

“T

he Technion is one of the preeminent institutions for technology in the world, and my parents thought this was an important investment for the future of Israel and humanity,” said Helen Diller’s daughter, Jackie Safier, President of the Helen Diller Family Foundation. “The new Helen Diller Center for Quantum Science, Matter and Engineering will help Israel secure its place in the next revolution in science and engineering.”

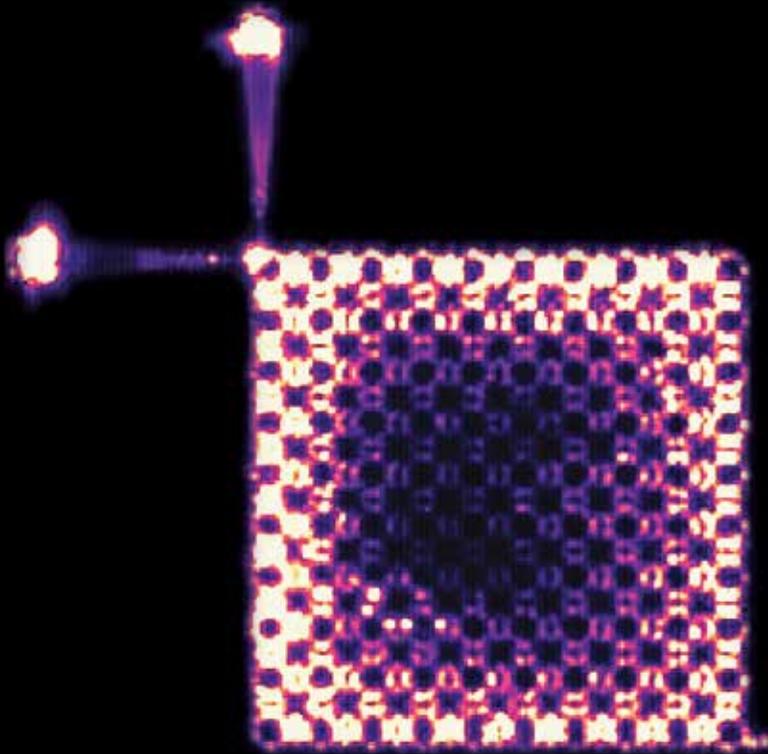
“Over the years, Technion has gained renowned experience in identifying the needs of industries and opportunities for developing the Israeli economy,” said Technion President Prof. Peretz Lavie. “In the past, this experience has been demonstrated in many fields, including space and aeronautics, microelectronics, electro-optics, and nanotechnology. This ability has allowed Technion to lead historic shifts in Israeli society and play a vital role in building Israel as the ‘Start-up Nation’ – a globally recognized technological powerhouse.”

“The Technion is at the forefront of research in many areas involving quantum mechanics,” said Distinguished Prof. Mordechai (Moti) Segev. “Artificial atoms ‘quantum dots’ were first demonstrated by Prof. David Gershoni and students. Gadi Eisenstein and his team developed tiny, inexpensive atomic clocks that found their way into industry. This is where innovative theoretical concepts were developed by Profs. Netanel Lindner, Daniel Podolsky, Assa Auerbach and their students in the area of quantum materials, with huge worldwide impact. These are only a few examples, out of very many, including some by my own team, such as our recent discovery of topological insulator lasers that started off as a quantum simulator system and evolved into devices with real potential impact on technology. The Helen Diller Family Foundation’s generous gift elevates the Technion to the pinnacle of quantum research institutions, and it is truly a game changer.”



research:
{ **PHOTONIC TOPOLOGICAL INSULATORS** }

THE FUTURE OF SEMICONDUCTOR LASING



Topological Insulator Lasers

RESEARCH & DISCOVERY

“**What we did** is going against the odds, going against common knowledge,” says Distinguished Prof. Mordechai (Moti) Segev of the Faculty of Physics. Prof. Segev was referring to the most recent papers, two groundbreaking back-to-back works on Photonic Topological Insulator Lasers published in the prestigious journal *Science*. This work, says the trailblazing professor, is: “possibly the most important thing I ever did.” This is no small statement by the award-winning Robert J. Shillman Distinguished Professor of Physics.

Topological insulators are one of the most innovative and promising areas of physics in recent years, providing new insight into the basic understanding of protected transport. These are special materials that are insulators in their interior but conduct a “super-current” on their surface: the current on their surface is not affected by defects, sharp corners or disorder; it continues unidirectionally without being scattered.

The researchers found a way to use the properties of photonic topological insulators to build a new type of laser which shows a unique fundamental behavior and greatly improves the robustness and the performance of laser arrays, opening the door for a vast number of future applications.

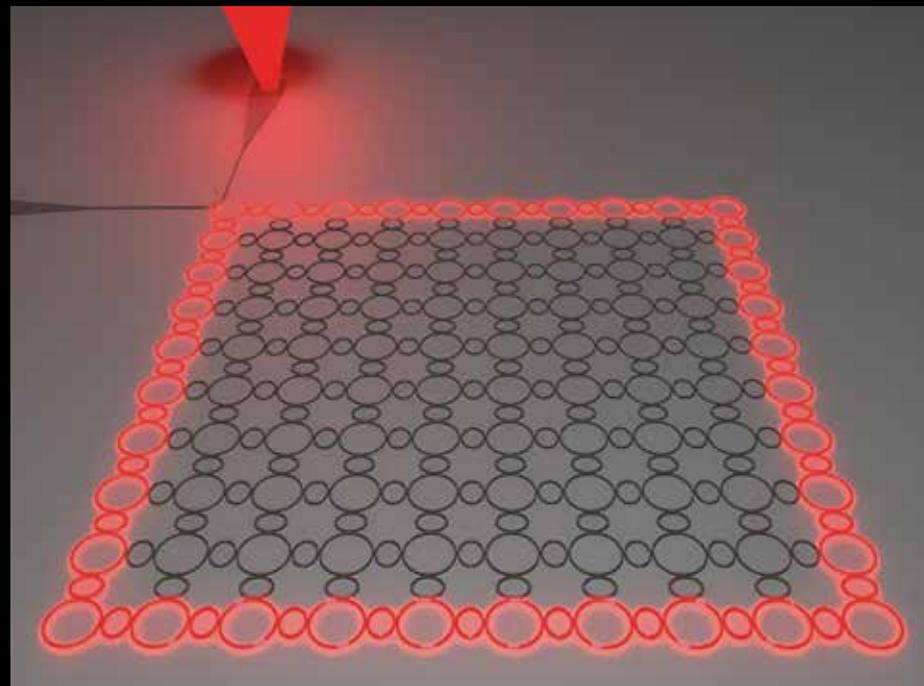


Illustration of the topological insulator laser: the light goes around the perimeter unobstructed by sharp corners or disorder, and eventually exits through the output port.



research:
{ **PHOTONIC TOPOLOGICAL INSULATORS** }



THE FUTURE OF SEMICONDUCTOR LASING

“Our research opens the door to many fundamental questions in science but also for exciting applications,” says Dr. Gal Harari. “One of these applications is a long standing problem in laser science and it is how to take many single emitters and coherently combine them together.”

“In a nutshell, the unique robust properties of topological insulators were believed to fail when the system contains gain, as all lasers must have. But we have shown that this special robustness survives in laser systems that have a special “topo-

(L-R): Dr. Miguel A. Bandres, Distinguished Prof. Mordechai Segev and Dr. Gal Harari

RESEARCH & DISCOVERY

logical" design, and is able to make the lasers much more efficient, more coherent, and at the same time immune to all kinds of fabrication imperfections, defects and the like. This seems to be an exciting avenue to make arrays of miniature lasers work together as one: a single highly coherent high power laser."

In their research, the scientists built a special array of micro ring resonators whose lasing mode exhibits topologically-protected transport – light propagates in one direction along the edges of the laser array, immune to defects and disorder and unaffected by the shape of the edges. This in turn, as they experimentally demonstrated, leads to highly efficient single-mode lasing that lasts high above the laser threshold.

The studies were conducted by Dist. Prof. Moti Segev and his team: Dr. Miguel A. Bandres and Dr. Gal Harari; in collaboration with Profs. Demetrios N. Christodoulides and Mercedeh Khajavikhan and their students Steffen Wittek, Midya Parto and Jinhua Ren at CREOL, College of Optics and Photonics, University of Central Florida, together with scientists from the US and Singapore.

The researchers demonstrated that not only are topological insulator lasers theoretically possible and experimentally feasible but that integrating these properties creates more highly efficient lasers. As such, the results of the study pave the way towards a novel class of active topological photonic devices that may be integrated with sensors, antennas and other photonic devices.



research:
{ PHOTONIC BIG BANG }



(L-R): Igor Yulevich, Michael Yannai, Elhanan Maguid, Prof. Erez Hasman, Arkady Faerman, and Dr. Vladimir Kleiner



Out of Chaos

At the purest frontiers of science and operating on a nanometric scale, a research team led by Prof. Erez Hasman at the Faculty of Mechanical Engineering has created a photonic “Big Bang” in laboratory conditions.

The multidisciplinary team demonstrated the transition from an orderly physical system to a disorderly system in optics on a nano-scale. The nanooptics Big Bang occurs when there is increased disorder and the system reaches a critical point of disorder, meaning dispersal of the opposite spinning photons in every direction. “Our research deals with the development of nanometer scale optical devices and with understanding the interaction between light and tiny structures,” explains Prof. Hasman, head of the nano-optics lab.

The photonic “Big Bang” used nanometric metasurfaces based on tiny silicon antennas (nano-antennas). “Using nano-antennas that we produced in the lab using silicon technology, we developed a method to control disorder in the system – increasing the entropy,” elaborates Prof. Hasman. “Light is composed

of photons, massless particles, traveling at the speed of light. Each photon behaves like a spinning top that spins either clockwise or counter-clockwise.”

A “photonic spin Hall effect” occurs when an orderly state is transformed into a state of minor disorder, meaning that the angle of the nano-antennas is slightly altered. This effect is a spatial separation between photons spinning in opposite directions; photons with positive spins move in a certain direction and others with negative spins move in the opposite direction.

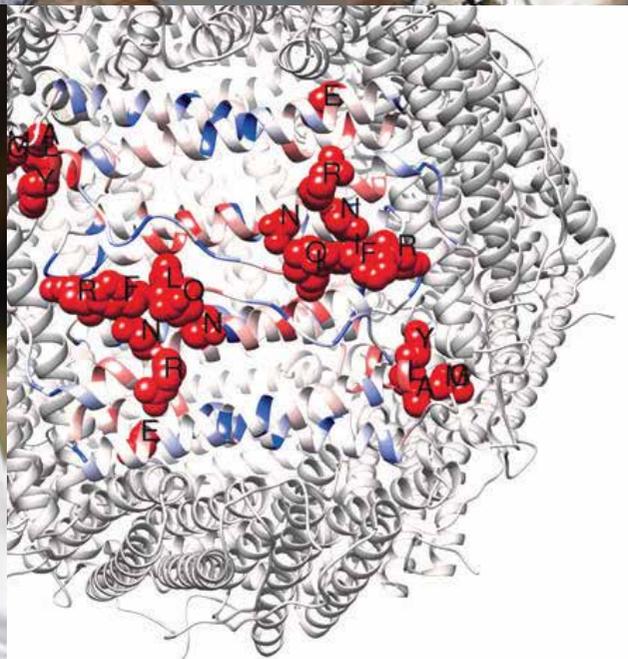
The research, published in *Science*, provides inspiration for understanding disorder in solid states, and will impact the field of spintronics. Furthermore, it opens opportunities for designing artificial materials while controlling their level of disorder.



Prof. Esther Meyron-Holtz



Dr. Marianna Truman-Rosentsvit



research:
 { **CELLULAR FERRITIN** }

The IRON Lady

RESEARCH & DISCOVERY

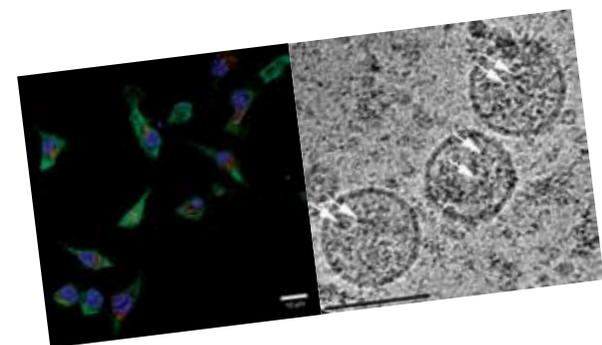
Innovation begins with the blank page, at the space where knowledge ends and the unknown begins. It is found in the open mind of young scientists with fresh eyes that look at an old, unsolved problem in a new way.

So it was this year with Dr. Marianna Truman-Rosentsvit and Prof. Esther Meyron-Holtz who took the well-known medical problems concerning iron distribution in the body, and looked at them in a new way. Their discovery into the cellular mechanism of ferritin opens new possibilities for treatments for a range of diseases, including cancer and neurological disorders.

It is well known that we need iron in our body to stay healthy, but less known that

too much iron can also cause trouble. Revealing the intelligence behind the distribution of iron, the scientists published a benchmark study in the January 2018 issue of *Blood*, that for the first time reveals the mechanism for cellular transport and secretion of ferritin, a protein considered central to iron storage in the body. The findings move ferritin to the center stage of systemic iron metabolism, as a protein that not only stores, but also transports iron in a controlled manner, giving it all the attributes of an iron regulator.

“Our discovery opens the door to a more accurate and comprehensive understanding of the characteristics of ferritin and the molecular processes it undergoes,” says Meyron-Holtz. “Such insights are bound to contribute to the development of therapies for numerous neurodegenerative diseases, which are characterized by abnormal iron distribution in the brain.”



Natural GENIUS

nanomimetics

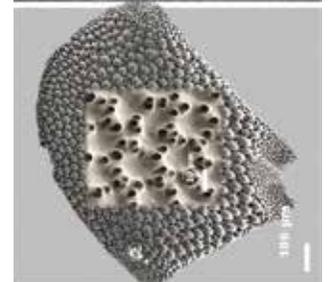
We're all familiar with the Biblical saying: "There's nothing new under the sun." The study of the ancient mechanisms of the brittle starfish led Technion scientists to the innovative secrets which would allow them to follow suit - creating ultra-tough ceramics.

An international research team led by Prof. Boaz Pokroy, Dr. Iryna Polishchuk, Dr. Alex Katsman Stas Kozachevich, and Yael Etinger-Geller at the Faculty of Materials Science and Engineering uncovered the unique protective mechanism of highly resistant lenses found in the *Ophiocoma wendtii*, a coral reef-dwelling brittle starfish. On the arms of this creature are hundreds of focal lenses that hold clues to making tough ceramics. Made of chalk, the lenses are powerful and accurate, and the deciphering of their crystalline and nanoscale structure has occupied lead researcher Prof. Boaz Pokroy and his team for over three years.

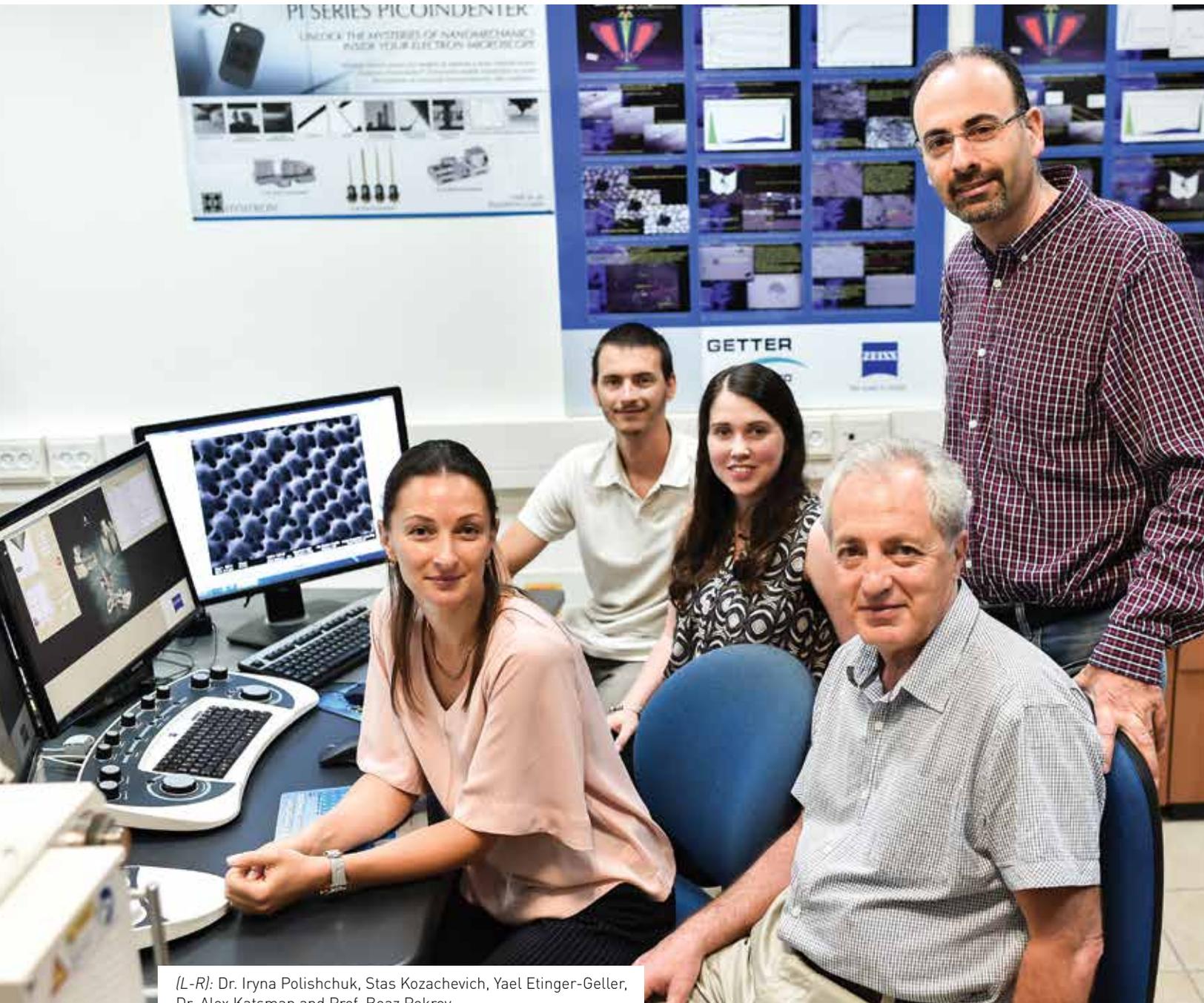
"*Ophiocoma wendtii* lenses are created in the open sea, not in a laboratory, and in effect we have discovered a strategy for making brittle material much more tough and durable under natural conditions," said Pokroy. "It is 'crystal engineering' and tempering without heating and quenching - a process that could be very useful in materials science and engineering. Just as nature exhibits creativity in improving an organism's abilities in various contexts such as strength, sensing, and self-defense, we see very high efficiency by the brittle star fish's use of existing raw materials under natural conditions to create hardy and precise transparent lenses," said Prof. Pokroy.

Scientists and engineers can now apply this biostrategy to toughen and strengthen synthetic ceramic materials utilized in various applications that span from optical lenses to automotive turbochargers and even biomaterial implants. The research was published in *Science* in December 2017.

How mimetics at the nano scale are improving man-made materials.



RESEARCH & DISCOVERY



(L-R): Dr. Iryna Polishchuk, Stas Kozachevich, Yael Etinger-Geller, Dr. Alex Katsman and Prof. Boaz Pokroy

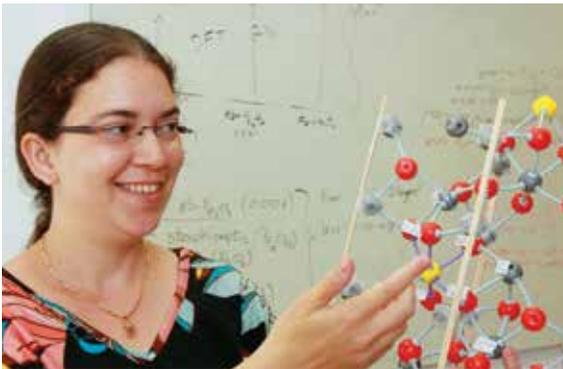


RESEARCH & DISCOVERY

Bill Gates / “Energy innovation is not a nationalistic game.”

research:
 { **RENEWABLE ENERGY** }

THE POWER BEHIND **POWER**



Prof. Maytal Caspary Toroker: just one of the GTEP energy pioneers. Her research group deciphers the success of doping iron as the best catalyst known today for splitting water. Water splitting is a process in which water is broken down into hydrogen and oxygen.

nion Energy Program (GTEP) is presently completing a decade of intense multidisciplinary activity.

In these ten years, GTEP has grown from proof of concept to a global hive of energy innovation. Spanning faculties, universities and continents,

Innovation aside, the whole of civilization depends on energy. With a finite supply of fossil fuels and an exponential increase in demand for energy, the Grand Tech-

GTEP's network of scientists and facilities also has laid inroads into industry, pioneering, for example, the cultivation of expertise to harvest Israel's newly found natural gas reserves.

The GTEP Graduate Studies Program attracts highly motivated graduates in science and engineering who are also required to carry out a research project. The program is designed to produce leaders in all energy-related fields.

GTEP is active in four dimensions: Alternative Fuels, Energy Storage and Conversion, Renewable Energy Sources, and Energy Conservation.



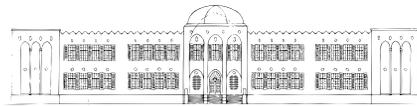


Theodor Herzl /

“If you will it,
it is no dream.”

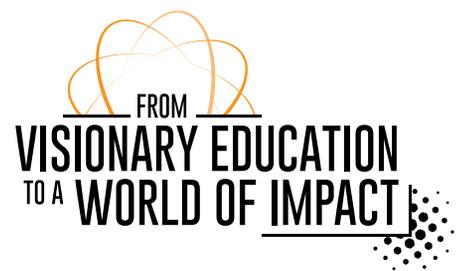
TECHNION

Shimon Peres / “It’s fortunate that Technion existed before the State of Israel. If it had been the other way around who knows what would have happened.”



THE NATIONAL IMPERATIVE

In 1912 the Technion cornerstone was laid with the vision to create a university to educate engineers and architects. By 1948, the infrastructure, knowhow and skills were in place to support the birth of the State of Israel.





{ **1948** }

THE STATE IS BORN

Israel's Declaration of Independence is celebrated by a Technion student body of 680. Three new faculties are quickly added to the prestigious institute: electrical engineering, mechanical engineering and aeronautical engineering.

{ **1950s & 60s** }



ISRAEL DEMANDS MORE ENGINEERS

As the demand for Technion expertise accelerates, more space is needed. In 1953, Technion moves up hill to a new 300-acre site allocated by PM David Ben Gurion on Mount Carmel.

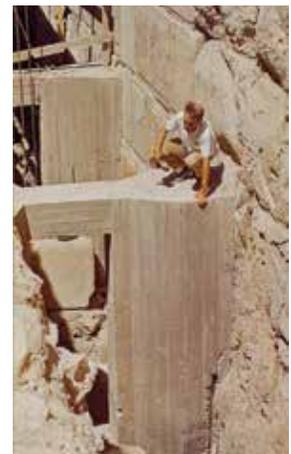


NATIONAL INFRASTRUCTURE WORKS

As the student body grows to the thousands, Technion expertise is behind the proliferation of power plants, water purification and water distribution facilities.

HOLDING UP THE WALL

After the success of the Six Day War, Technion experts help strengthen the Western Wall in Jerusalem while at the same time its architects design the foundations of the capital.



HOME-GROWN HIGH-TECH

Israel's high-tech industry grows out of Technion labs

Uzia Galil (R), a founding father of Israeli High-Tech in Physics Faculty 1961.



Fathers of the LZW compression algorithm
 Profs. Ziv (L) and Lempel

{ 1970s & 1980s }

MICROELECTRONICS

From the birth of fiber-optics and the development of optoelectronics, Technion graduates are at the forefront of Israeli industry and lead the high-tech revolution.

Israeli breakthroughs in technology are introduced to the world. Among them the LZW compression algorithm used in popular file formats such as jpg, eps, pdf, zip and tiff.

THE HIGH-TECH REVOLUTION

Intel, IBM, Motorola, HP and other technology giants open centers in Israel catalyzing the rapid growth of Israeli R&D. Technion plays a key role in producing the engineers and innovators needed to staff and lead these companies.



Prof. Arnan Segner (L) at the Technion wind tunnel



Prof. Kidron brings microelectronics to the forefront of research, and Technion positions Israel as a leader in the field

{ 1990s }

THE BRAIN GAIN

After the collapse of the Soviet Union in the early 1990s, Technion leads the national initiative to ensure that the talent of incoming scientists is put to use, including the creation of the first technological incubator in Israel.

SEEDING ISRAEL'S START-UP CULTURE

Research breakthroughs rapidly translate into real-life applications in a spirit of entrepreneurship and innovation. Among the world-changing examples of Technion innovation are the Disk-on-Key and the introduction of the game-changing treatment for Parkinson's disease through the development of Rasagiline, and the isolation of human embryonic stem cells. Across Technion, the start-up culture proliferates.



Disk-on-Key invented by Technion alumnus Dov Moran



The PillCam - a revolutionary intestinal scope by Technion alumnus Gavriel Iddan



Prof. Moussa Youdim, Parkinson's therapy pioneer

Yitzhak Rabin / “You, the people of the Technion, have led the way in technology, science and engineering”

... { 2000s }

NANO RESEARCH IS LAUNCHED

Pioneering multidisciplinary science, Technion introduces a new research paradigm – through the Russell Berrie Nanotechnology Institute (RBNII), the Grand Technion Energy Program (GTEP) and the Lorry I. Lokey Interdisciplinary Center for Life Sciences and Engineering.



The world's smallest bible is inscribed on a wafer 0.5mm²

FIRST ISRAELI NOBEL PRIZES IN SCIENCE

Technion researchers Distinguished Profs. Avram Hershko and Aaron Ciechanover become Israel's first Nobel laureates in science in 2004 for their discovery of ubiquitin-mediated protein degradation.

.....{ 2010s }

THE NOBEL LEGACY CONTINUES

Technion Distinguished Prof. Dan Shechtman is awarded the Nobel Prize in 2011 for the discovery of a new class of matter, Quasicrystals. In 2013, Technion alumnus Arieh Warshel follows in the Nobel tradition for his pioneering work in computational modeling of complex chemical systems.



IRON DOME

In 2011 the world witnesses a game-changing short-range air defense system “Iron Dome,” that saves countless lives in Israel's population centers. The dome is developed by Technion graduates working at Rafael.



GLOBAL CONSOLIDATION

Technion becomes the first foreign university to grant degrees on American soil through the Jacobs Technion-Cornell Institute in New York City. On the other side of the globe, Technion becomes the first Israeli academic institute to establish a university in China, Guangdong Technion-Israel Institute of Technology.



Guangdong Technion-IIT Campus in Shantou

.....{ 2020s }

QUANTUM LEAP

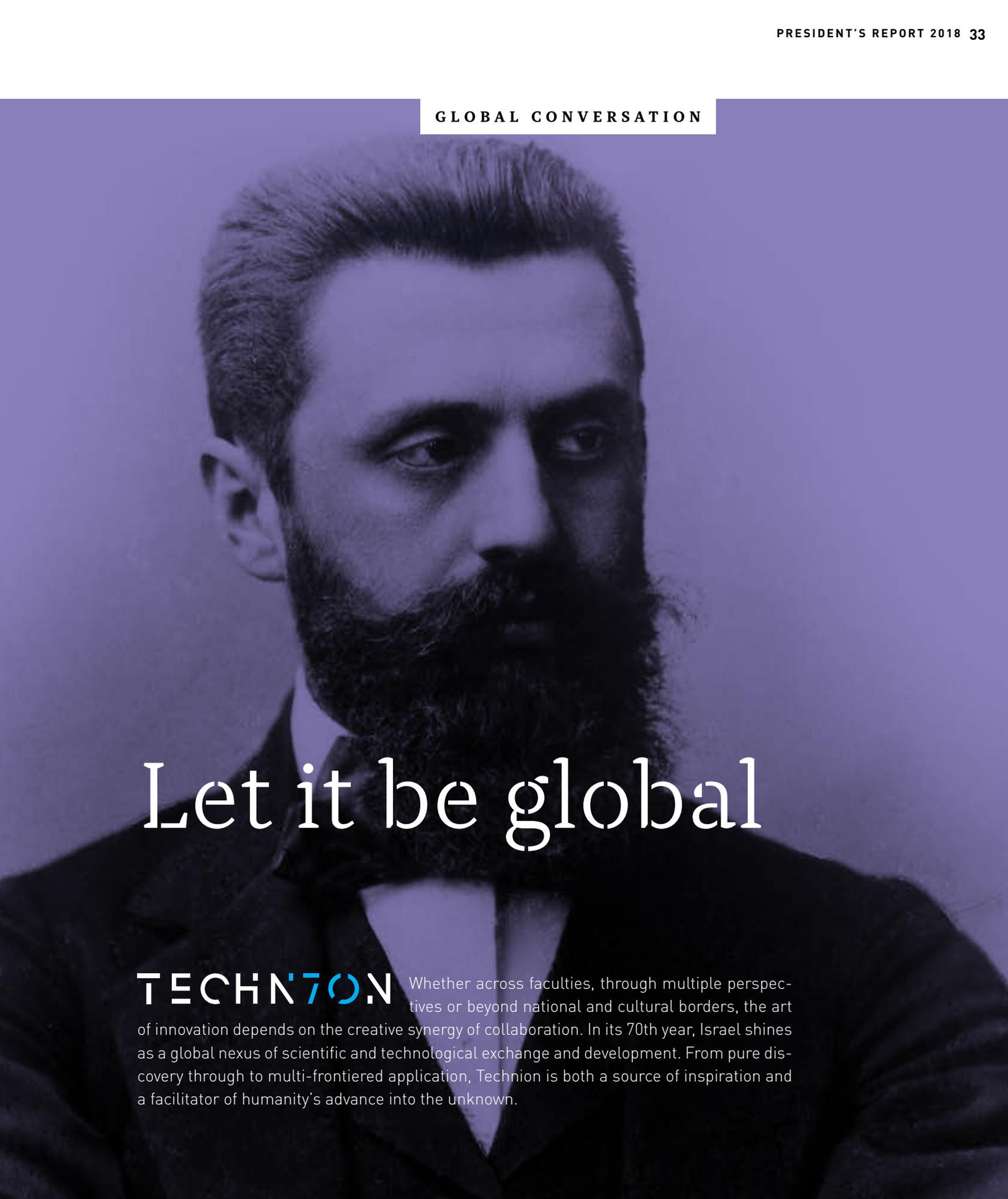
As the world approaches 2020, Technion is putting Israel at the pioneering frontier of quantum science with the establishment of the Helen Diller Center for Quantum Science, Matter, and Engineering.



Cornell Tech Campus on Roosevelt Island in New York



GLOBAL CONVERSATION



Let it be global

TECHNION Whether across faculties, through multiple perspectives or beyond national and cultural borders, the art of innovation depends on the creative synergy of collaboration. In its 70th year, Israel shines as a global nexus of scientific and technological exchange and development. From pure discovery through to multi-frontiered application, Technion is both a source of inspiration and a facilitator of humanity's advance into the unknown.

The internet of value

GLOBAL CONVERSATION

The digital revolution has left no stone unturned, but perhaps one of the most unexpected revolutions currently in motion is impacting the financial sector with the arrival of the bitcoin and other decentralized electronic currencies.

In September 2017, the Hiroshi Fujiwara Cyber Security Research Center at Technion hosted the conference: “Decentralized Cryptographic Currencies and Blockchains.” The conference featured some of the elusive movers and shakers in the field of cryptocurrencies - including Vitalik Buterin, founder of Ethereum, a cryptocurrency and open-source platform based on blockchains. The value of Ethereum skyrocketed in 2017 by thousands of percent.

The conference addressed blockchains, the technological concept behind cryptocurrencies such as Bitcoin, Ethereum, and Zcash and their regulation. It was attended by students, researchers, and industry professionals.

The conference was organized by Prof. Eli Biham, head of the Fuji-

Don Tapscott, Blockchain expert / “The first generation of the digital revolution brought us the Internet of information. The second generation – powered by blockchain technology – is bringing us the Internet of value: a new platform to reshape the world of business and transform the old order of human affairs for the better.”

wara Cyber Security Research Center, and Prof. Eli Ben-Sasson, both from the Faculty of Computer Science.

The Hiroshi Fujiwara Cyber Security Research Center focuses on cyber security research such as software and hardware protection, operating systems and cloud information protection as well as communication to and from the cloud, protection of IoT (Internet of Things) systems, verification of software and hardware, computer vision, security of autonomous systems, machine learning for security, cryptology and cryptanalysis, security and privacy of medical and aeronautical systems.



WHY THE WORLD'S
NEW CURRENCIES
WILL BE ENCRYPTED



Vitalik Buterin



Prof. Eli Ben-Sasson (L) with conference participants

From GLOBAL CONVERSATION Annapurna to Amazon

How two Technion alumni conceived the start-up that would help Amazon move swiftly and smartly into the next generation of digital enterprise.

In 1992, Billy Hrvoye left war-torn Sarajevo on the last Jewish Agency flight to Israel. With his life on-hold, the young refugee convinced the then-dean of the Faculty of Electrical Engineering to let him resume his studies despite the language barrier. “The Technion was my family and my first home,” he says. “I came like a refugee and the Technion helped me dream big.”

While at Technion, Billy befriended fellow student Nafea Bshara, a Christian Arab from the northern town of

After working at IBM and the Israeli StartUp Galileo, the two Technion alumni decided to start up alone. “We co-founded Annapurna with Ronen Boneh and a group of exceptionally talented leaders,” recalls Billy. The product accelerates cloud servers – claiming superior performance, security and efficiency. “Many companies weren’t willing to take risks, but Amazon is forward-thinking with a long-term vision,” explains Nafea. “Our cultural DNAs matched. We both wanted to change the world.”

Nafea Bshara / “Our cultural DNAs matched. We both wanted to change the world.”

Soon Annapurna had 70 people doing R&D in Yokneam and 19 more around the world in sales and marketing. In early 2015, Amazon bought Annapurna Labs reportedly for over \$300 million. After the acquisition, Amazon announced the opening of two new centers in Tel Aviv and Haifa, which will provide work for hundreds of Israelis.

“Our biggest problem is deciding what NOT to do,” says Billy: “On a human level, it’s important that the people with us fulfill their dreams. We believe that if you can dream it, you can do it.”

Billy Hrvoye /

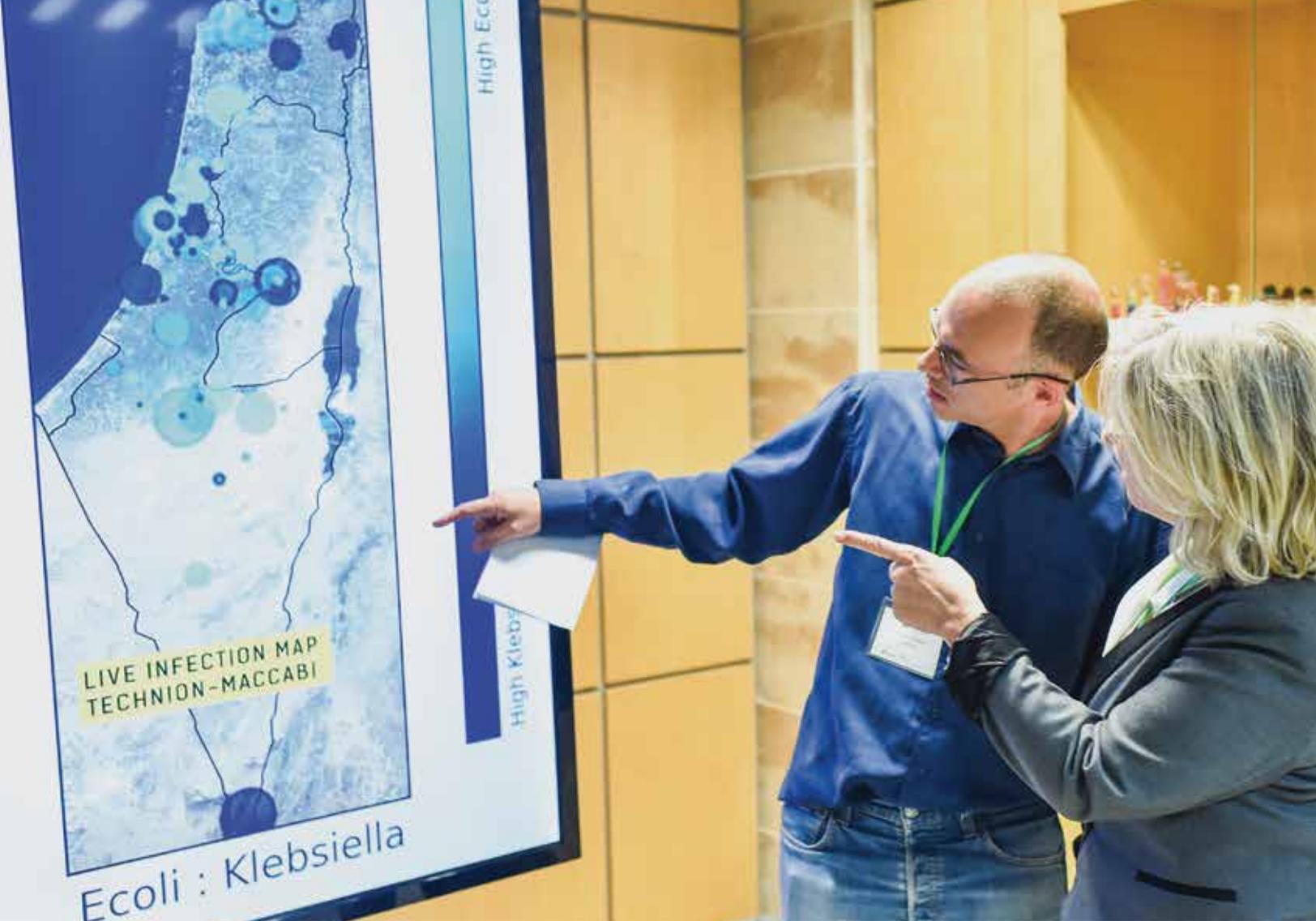
“Our mantra is that there are limitless opportunities.”

Tarshiha, who, because his father was a Technion student, was born into a Technion dorm. Impressions of infancy ran deep, as Nafea ended up enrolled in the Technion Excellence Program. “I don’t think I would get the fundamentals and breadth and exposure that I received at Technion at an Ivy League school,” he says.

amaz



(L-R): Nafea Bshara and Bilik Hrvoye



Prof. Roy Kishony (L)

President Prof. Peretz Lavie / “We’re living in a fascinating era for scientific research, an era where extensive data is used to improve diagnoses and treatments”



Conference Lecturers

conversation:
HEALTHTECH

GLOBAL CONVERSATION

Predicting Health

For two days in December, researchers and students converged on Technion to hear from the world's foremost experts on one of the most dynamic and groundbreaking fields today: using deep learning and big data to improve healthcare

Technion recently hosted the first ever "Biomedical Informatics – Big Data Science" Conference, drawing a large audience eager to hear about the latest developments in this fascinating field. Applying deep learning to medi-

cal data makes it possible to generate new hypotheses and to make discoveries that would not have been possible in the past. The conference was brilliantly organized by Prof. Roy Kishony, world authority on antibiotic resistance and Head of the Technion Lokey Center for Life Sciences and Engineering and Dr. Kira Radinsky, visiting Technion professor and director of data science of eBay. Their unique synergy resulted in a precise mix of speakers who covered a wide range of topics – from prac-

tical applications of data science in medical care to ethical precision medicine and next generation healthcare. In the course of two days, 24 eminent speakers from around the world shared their latest research findings with the international audience. The conference was sponsored by Yad Hanadiv.

Prof. Shai Shen-Orr, of the Rappaport Faculty of Medicine and the conference organizing team, addressed the ongoing efforts to build a cell-centered view of genomic data that can be integrated with primary immunology literature.

Experts from around the world included Prof. Nigam Shah from Stanford University, who described the initiative he leads, which takes data from electronic health records and uses machine learning to help doctors answer clinical questions. Dr. Hannah Bayer, a neuroscientist from New York University, spoke about the HUMAN Project, which studies 10,000 New York City residents over a period of 20 years, tracking everything from financial and social data to environmental and health factors.



Dr. Kira Radinsky

{ *in the world:*
JACOBS TECHNION-CORNELL INSTITUTE }

Bringing NY Back to the Future

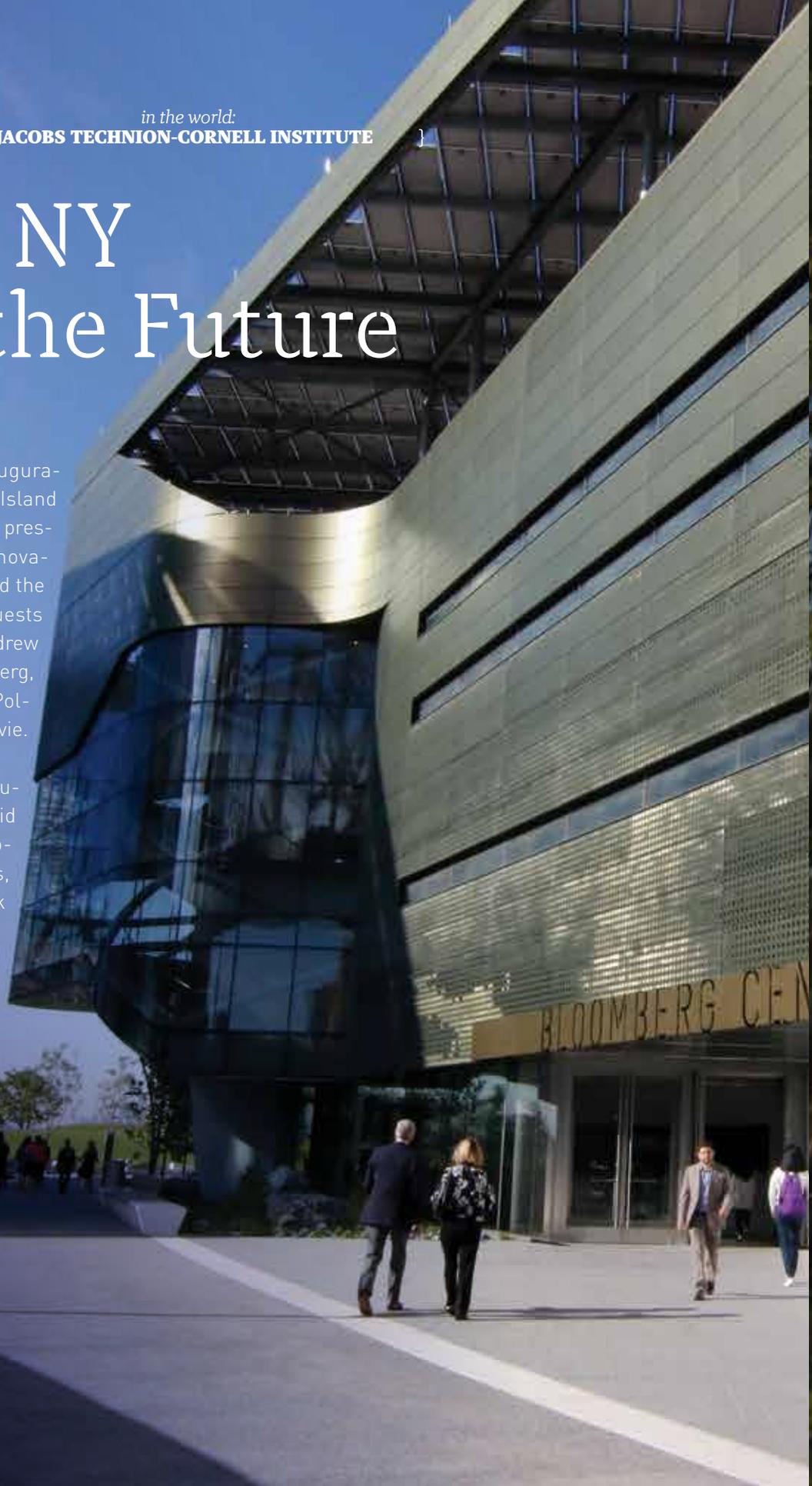
GLOBAL CONVERSATION

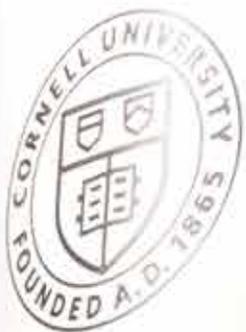
September 2017 saw the historic inauguration of a global campus on Roosevelt Island in New York City. Over 500 guests were present for the official opening of the innovation hive of the future: Cornell Tech and the Jacobs Technion-Cornell Institute. Guests included Mayor Bill de Blasio, Gov. Andrew Cuomo, former Mayor Michael Bloomberg, Cornell University President Martha Pollack and Technion President Peretz Lavie.

"It's ambitious — it was almost an audacious dream when we started," said Gov. Andrew Cuomo, prior to the ribbon-cutting ceremony. "In many ways, this project helps bring New York City back to the future," said project visionary Michael Bloomberg.

President Peretz Lavie recalled thinking the Israeli institute had a slim chance of winning the bid. "Since we have such a slim chance of winning — be wild," he recalled telling the Technion team. "Use your imagination, think outside the box."


FROM
VISIONARY EDUCATION
TO A **WORLD OF IMPACT**





CORNELL TECH

**HOME OF THE JACOBS
TECHNION-CORNELL
INSTITUTE**

CAMPUS DIRECTORY

conversation:
{ **GUANGDONG TECHNION IIT** }



Elucidating Experience

GLOBAL CONVERSATION

FROM
VISIONARY EDUCATION
TO A WORLD OF IMPACT

Li Ka-shing / “Vision is perhaps our greatest strength... it has kept us alive to the power and continuity of thought through the centuries, it makes us peer into the future and lends shape to the unknown.”



(L-R): Mayor of Shantou Zheng Jiange, Technion President Peretz Lavie, Director of the Li Ka Shing Foundation Richard Li, GTIIT Vice Chancellor Nobel Laureate Aaron Ciechanover, Consul General of Israel in Guangzhou Nadav Cohen, Vice-Governor of Guangdong Province Huang Ningsheng, Former Governor of Guangdong Province Zhu Xiaodan, Honorary Chairman of the Shantou University Council Li Ka-Shing, Secretary of the CPC Shantou Chen Liangxian, GTIIT Chancellor Li Jiange, Chair of Planning Committee Yaffa Zilbershats, STU President Jiang Hong

The Guangdong Technion-Israel Institute of Technology (GTIIT) was officially inaugurated in December 2017 in Shantou, China. GTIIT is an historic partnership between the Li Ka Shing Foundation, the Guangdong Provincial Government, the Shantou Municipal Government and the Technion - Israel Institute of Technology. It will train an elite cadre of scientists and engineers, and will also promote cooperation between Shantou University and Technion.

The new campus covers 100,000 square meters and includes 13 buildings, 29 classrooms, 14 teaching laboratories and 55 research laboratories. Six buildings serve as dormitories for students and faculty. GTIIT is expected to train approximately

3,000 students in its first decade, including 300 postgraduates. In the current academic year, there are already 216 students studying at GTIIT.

"China offers Technion a broad platform to realize its academic excellence. We in turn must learn from Technion and Israel as to what innovative thinking is." said GTIIT Chancellor Li Jiange at the festive ceremony.

**40
YRS**



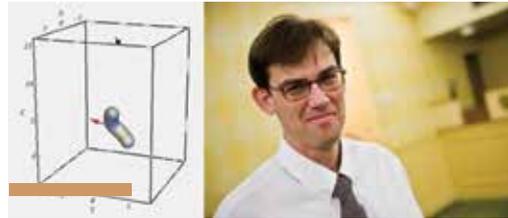
40 YEARS OF THE LEMPEL-ZIV ALGORITHM

In 1977, Profs. Jacob Ziv and Prof. Abraham Lempel introduced the math that would enable lossless compression regardless of the structure of data and without prior knowledge of statistical properties. Many compression technologies used in memory devices, computers, and smartphones are based on this algorithm. In 2017, the achievement was honored with the EMET Prize.



2018 UMBRELLA CONFERENCE

The 32nd Umbrella Symposium on Energy Conversion and Storage was held at the Technion with the participation of researchers from Jülich Research Center and from RWTH Aachen University in Germany. The conference took place under the auspices of the Grand Technion Energy Program (GTEP).



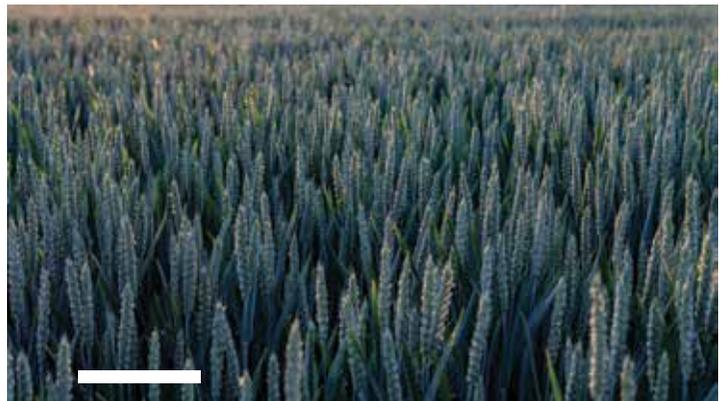
NANO SWIMMERS

An interdisciplinary study has introduced the optimal configuration for nanoscale robots that travel within the human body for biomedical tasks. The team was led by Prof. Alex Leshansky of the Wolfson Faculty of Chemical Engineering.



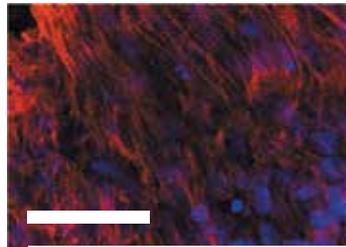
TWEETING HAPPINESS

Research performed as part of the doctoral work of Ben Galon, under the supervision of Dr. Yaron Kanza of AT&T Research Laboratories, and Prof. Yerach Doytsher of the Technion Faculty of Civil and Environmental Engineering has introduced a method that analyzes social media posts to map emotions in urban spaces.



HEAL THE YIELD

An innovative technology developed at the Laboratory for Targeted Drug Delivery and Personalized Medicine Technologies at the Wolfson Faculty of Chemical Engineering by Prof. Avi Schroeder and colleagues is expected to significantly increase agricultural yields. This will be achieved using a nanometric transport platform, which was until now applied in medicine.



20 YRS

20TH ANNIVERSARY OF THE ISOLATION OF HUMAN EMBRYONIC STEM CELLS

20 years ago, in 1998, Prof. Itskovitz-Eldor, in collaboration with Prof. James Thomson from the University of Wisconsin, isolated the first human embryonic stem cells (hESCs). This is considered one of the most important scientific breakthroughs in medical history. In the same year, Prof. Itskovitz-Eldor established the first stem cell research laboratory at the Rappaport Faculty of Medicine at Technion. Prof. Itskovitz-Eldor currently holds the largest number of scientific publications in the field of hESCs.



YONINA ELДАР ELECTED TO THE ACADEMY

Prof. Yonina Eldar, second from left, of Technion's Viterbi Faculty of Electrical Engineering was elected to the Israel Academy of Sciences and Humanities in December – making her one of only five women scientists in this prestigious institution and the youngest member.



DOES GOLD REMEMBER?

Researchers from Technion, led by Prof. Eugen Rabkin, with German colleagues have demonstrated the phenomena of shape memory and self-healing in gold microparticles. The discovery could lead to robots capable of self-repair; and mechanically stable and damage-tolerant components and devices.



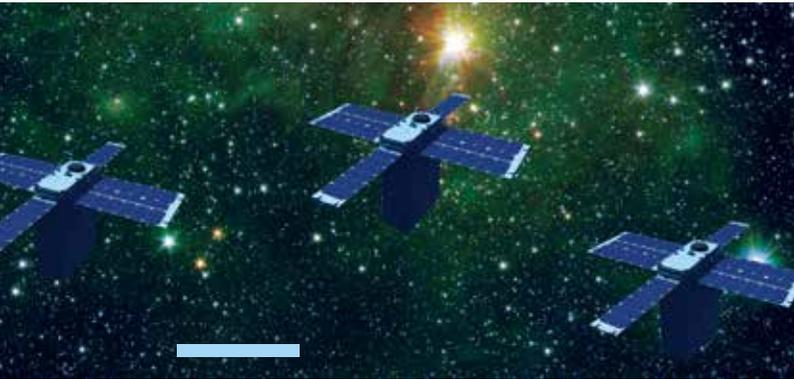
THE BRAIN'S LEARNING ORCHESTRA

New faculty recruit Prof. Tzipi Horowitz-Kraus is pioneering insight into the early diagnosis and customized treatment of dyslexia. The research is conducted out of the Educational Neuroimaging Center at the Faculty of Education in Science and Technology - the first of its kind in Israel.



SUPPRESSING THE RESISTANCE

Advancing the field of customized medicine through nanotechnology, Prof. Shulamit Levenberg and team have developed a system that enables the rapid and accurate customization of an antibiotic to the patient.



COUNTDOWN TO SAMSON LAUNCH

Technion announced that in late 2018, a group of three nanosatellites, which will fly in controlled formation, will be launched for the first time into space. The ADELIS-SAMSON Project, headed by Prof. Pini Gurfil, is supported by the Adelis Foundation and the Israel Space Agency.



CATS COUNTER HIV

Feline AIDS or FIV gives clues in how to counter human AIDS. Prof. Akram Alian and Dr. Meytal Galilee from the Faculty of Biology are using FIV to uncover the mechanism of viral resistance to anti-reverse transcriptase drugs. Their findings, published in *PLoS Pathogens*, show that the FIV protein forms a closed pocket that blocks the drugs from effective binding.



AUTONOMOUS VEHICLES FOR SCHOOLCHILDREN

More than 1,000 students from Israel, the US, Argentina, Mexico, Russia, and Ukraine took part in the ninth Technion Robotraffic contest, named for Nadav Shoham. Hosted by the Technion's Leumi Robotics Center, the contest challenges high school students to build autonomous vehicles that are required to perform tasks on a simulated road.



TECHNOBRAIN - THE EGG COPTER RETURNS

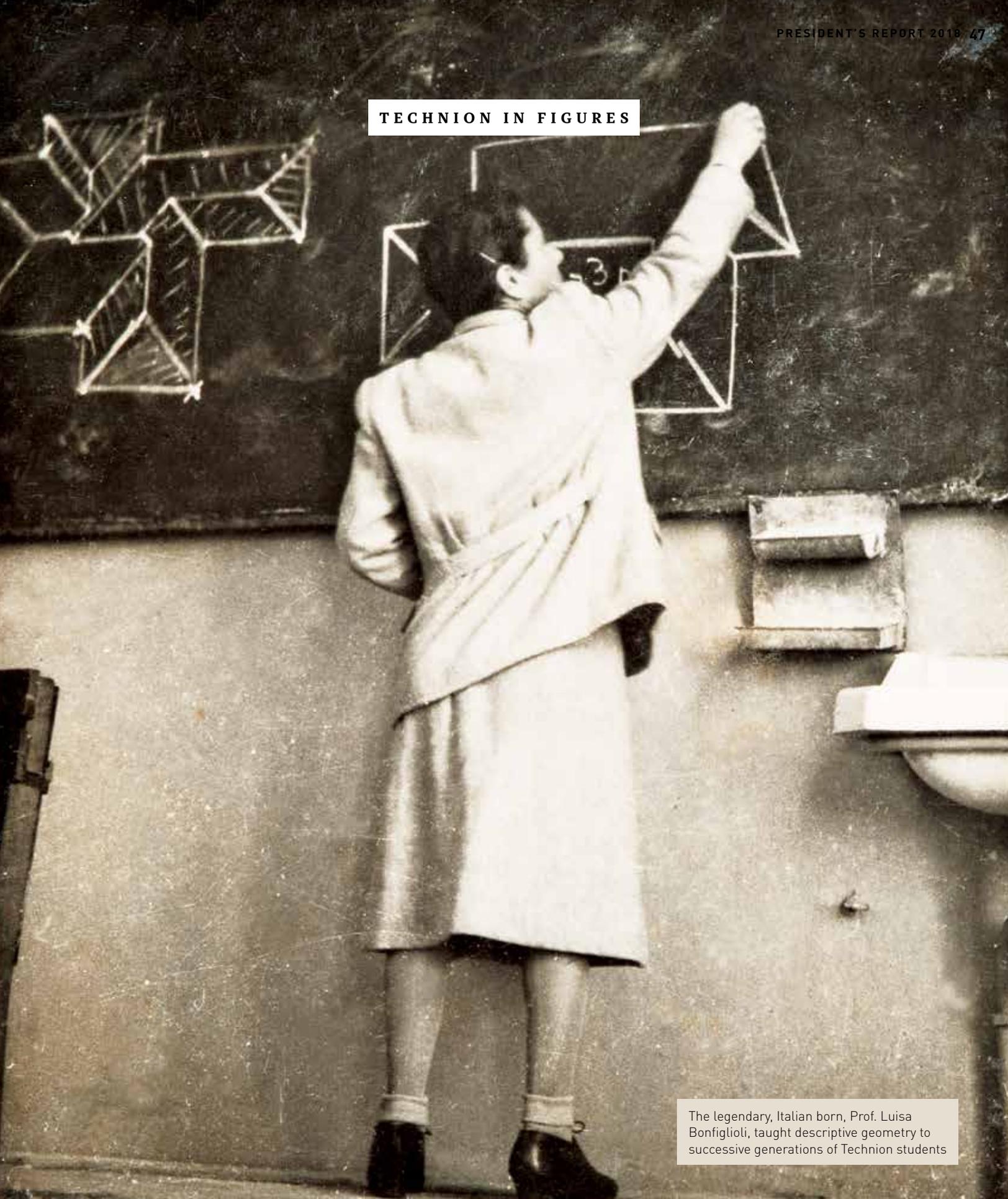
Led by 85-year-old Yishai Zimmerman, the Zimmerman family from Kibbutz Ein Harod Ichud won the Doctor Bob 2018 TechnoBrain competition by successfully designing a device for dropping raw eggs from 40 meters. The 14 teams were judged according to several criteria: the number of eggs that reached the ground intact; the percentage of eggs that didn't break; speed; how close the device landed to the target; and design. TechnoBrain was created in 1997 by the late Neev-Ya Durban.



SHOOT FOR MARS

Six "astronauts" have entered a structure designed by Technion students in order to simulate life on Mars. The building was erected near the town of Mitzpe Ramon in the Negev desert as a first step in the establishment of a space simulation center.

TECHNION IN FIGURES



The legendary, Italian born, Prof. Luisa Bonfiglioli, taught descriptive geometry to successive generations of Technion students

GIVING 2017 - 2018

GUARDIANS

TECHNION GUARDIANS HAVE MADE
THE HIGHEST LEVEL OF COMMITMENT
TO THE INSTITUTE

NATHAN ADLER STIER, *ARGENTINA*

AVRAHAM AND PATRICIA ASHKENAZI, *VA, USA*

YAACOV AND BATYA KOTLICKI, *TEL AVIV, ISRAEL*

ROBERT AND RUTH MAGID, *SYDNEY, AUSTRALIA*

MIRIAM MALACH, *NY, USA*

RAFI (RAPHAEL) MEHOUDAR, *TEL AVIV, ISRAEL*

NAOMI AND JON NEWMAN, *WA, USA*

GIVING 2017 - 2018

GIFTS

A.A.G. Trust Gift for Eco-Friendly Recycling through Mechanochemistry

Steven **Abramson** Fund to Support Prof. Eisen's Water Research

Adelis Fund Brain Research Award

Adelis Fund Gift to Study the Impact of Acupuncture on Quality of Life in Cancer Patients

Arcadya Charitable Fund Gift to the President's Discretionary Fund

Avie and Sarah **Arenson** Israeli Built Heritage Research Center

Azrieli Bioinformatics Core

Azrieli Faculty Fellowship Program

Randy L. and Melvin R. **Berlin** Fund for Homeland Security Research

Russell **Berrie** Foundation Equipment Fund for RBNI

Rodica and Paul **Burg** Faculty Recruitment Fund

Gift of the Estate of Prof. David Bernard **Casson** for Churchill Plaza Renovation

Check Point Software Technologies Ltd. Gift to First Israel

Firefly Scientists Foundation Fund for Applied Research with Commercial Potential

Firefly Scientists Foundation Fund for Design School Feasibility Study

Firefly Scientists Foundation Fund Equipment Fund for Prof. Shpigelman

Firefly Scientists Foundation Fund for Undergraduate Design Courses

Laura Gurwin **Flug** Family Fund for the Research of Engineering Foods towards Optimal Cancer Chemoprevention

Laura Gurwin **Flug** Family Fund for the Research of Rational Engineering of Insect Proteins for Age-Tailored Functional Foods

Naomi **Fromstein** Gift to Support the Technion Global Engineering Center

Boruch **Frusztajer** Gift to Support Research in Quantum Science, Matter and Engineering

Fujiwara Cyber Security Research Center

Gene and Jerome **Hankin** Apartment in the Undergraduate Student Village

Sandy **Hittman** Fund for the Undergraduate Student Village

Julis Urban Life Fund at JTCl

Philip and Harriet **Klein** Foundation Fund for the Undergraduate Student Village

Gitta and Saul **Kurlat** Research Fund on the Roles of Ubiquitin System in Controlling Cell Division

Harry and Yvonne **Lenart** Charitable Foundation Gift to Support Prof. Machluf's Research

Sam **Lernik** Trust Gift for Research and Teaching Infrastructure

Sonia T. **Marschak** Academic Chair in Humanities and Arts

Vera Glanc **Mellner**, Celia Feldman Mellner and Samuel Nathan Mellner Memorial Fund

Melvyn and Carolyn **Miller** Fund for Innovation

Edwards **Miller** Gift to Support Recruitment of Prof. Osovski

Alfred **Munzer** Fund for Rabin Bulding Patio

Hubert **Nassau** Floor in the Undergraduate Student Village

Allen and Jewel **Prince** Theater

Eddie and Marianna **Ravinovitch** Stem Cell Research Fund for Cardiac Arrhythmias

Roslyn and Leonard **Rosen** Apartment in the Morton and Beverley Rechler Family Foundation Dormitory

Rosman Family Fund for the Undergraduate Student Village

Stanley and Tanya **Rossby** Fund for Scientific Research

Julia and Joshua **Ruch** Gift to Jacobs Technion Cornell Institute Director's Discretionary Fund

Julia and Joshua **Ruch** Gift to Support Runway Startup Postdoc Program at JTCl

S. Lyon **Sachs** Gift to Support Joint Metabolomics Research

Sagol Center for Intelligent Composite Materials

Sagol Building

Seiden Family Workshops

Isaiah **Shavitt** Memorial Fund for Quantum Chemistry

Robert J. **Shillman** Fund for Image Processing Research

Technion UK Gift for Entrance Lobby in the International Study Center

Talma and Joseph **Vardi** Gift to Support Technion's Education Programs for Special Sectors

Weinberg Fund for Neurodegenerative Disease Research

Benjamin **Wygodny** Gift to the Technion Global Engineering Center

Yad Hanadiv Foundation Gift to the National Pathogen Genomics Center

Aliza **Yamini** Research Fund in Nanotechnology

FELLOWSHIPS

Elinor and Norman **Belfer** Fellows Program

Gift from the Estate of Kurt **Ekler** for Fellowships in Medical Engineering

Gordon Fellowship Fund

Korman Fellowship Fund at JTCl

Artur and Phyllis R. **Mager** Scholarship and Fellowship Fund

Marvin **Reinstein** Fellowship Fund in the Faculty of Physics

Rose L. and Sidney N. **Shure** Fellowship Fund

Raymond N. **Shwake** Master's Degree Fellowship Fund

Martin and Sylvia **Yohalem** Fellowship and Scholarship Fund

SCHOLARSHIPS

Dormont Scholarship Fund

Elkind Scholarship Fund

Maria and William **Herskovic** Scholarship Fund

Leon **Katz** Scholarship Fund

Scholarship Fund in Memory of Doris and Walter **Labecki**

Peter and Steven **Sebestyen** Scholarship Fund

Shyrlie **Shriberg** Memorial Scholarship Fund

A complete list of giving is available at: presidentsreport.technion.ac.il

GUARDIANS

Technion Guardians have made the highest level of commitment to the Institute

- A** *Menachem and Carmela Abraham, MA, USA*
Adelis Foundation, France
Dr. Miriam and Sheldon G. Adelson Medical Research Foundation, MA USA
Catherine and Frederick R. Adler, NY & FL, USA
Nathan Adler Stier, Argentina
Alon Family Foundation, CA, USA
Paul and Sherry Altura, CA, USA
Maurice Amado Foundation, CA, USA
Amdocs (Israel) Ltd.
Annenberg Foundation, PA, USA
Carl and Iris Barrel Apfel, FL, USA
Applied Materials Foundation, CA, USA
Eng. Paul S. Arieli (Goldschmidt) and Dr May Arieli, Israel
Arison Foundation, FL, USA / Tel Aviv, Israel
Lester Aronberg Foundation, IL, USA
Norman and Helen Asher, IL, USA
Avraham and Patricia Ashkenazi, VA, USA
Victor and Efpichia Asser, Athens, Greece
Automatic Data Processing, Inc., NJ, USA
Florette and Henri Avram, Paris, France
Itice Avram, Paris, France
David and Stephanie Azrieli, Montreal, Canada
- B** *Morton and Selma Bank, FL, USA*
Bank Hapoalim, Israel
Ovadia Barazani's Foundation, Haifa, Paris, London
Samuel Barliant Family, IL, USA
Daron and Ron Barness Family, AZ, USA
Matilda and Gabriel Barnett, CA, USA
- Dr. Euval and Olga Barrekette, NY, USA*
Syd Barrel, FL, USA
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 Alexander Lidow, USA
 Bernard Mars, USA
 Louis Milgrom, USA
 Raphael Mishan, USA
 Jonathan Mitchell, USA
 Dr. Hyman Mitchner, USA
 Ruth Leventhal Nathanson, USA
 Parviz Nazarian, USA
 Justice Shoshana Netanyahu, Israel
 Prof. Dr. Ewald Nowotny, Austria
 Samuel Pisar, France
 Herbert Pollack, USA
 Rachel Pollak, Israel
 Eugene Riesman, Canada
 Morris Rochlin, USA
 Barrie Rose, Canada
 Daniel Rose, USA
 Elihu Rose, USA
 Shmuel Rotem, Israel
 Eric Samson, South Africa
 Paul Shatz, USA
 Sholom Shefferman, USA
 Harry Sheres, Canada
 Emanuel Shimoni, Israel
 Abe Simkin, Canada
 Janey Sweet, USA
 Bernice Tanenbaum, USA
 Gen. (Res.) Dan Tolkowsky, Israel
 Lucy Ullmann, USA
 Yona Uspiz, Israel
 François Wasservogel, France
 Mary Werksman, USA
 Stef Wertheimer, Israel
 Estelle Yach, South Africa
 Ruth Ziegler, USA
 Robert Zinn, USA

REPRESENTATIVES OF GROUPS AND ORGANIZATIONS

.....
JEWISH AGENCY
 Alan Hoffman

ASSOCIATION OF ENGINEERS AND ARCHITECTS

Simcha Afek
 Amnon Bartal
 Emanuel Zvi Liban

ISRAEL ACADEMY OF SCIENCES AND HUMANITIES

Prof. Yaron Silberberg

ALUMNI ASSOCIATION

Eyal Kaplan*
 Dr. Ilana Maor

PROFESSORS

Prof. Ariel Orda*
 Prof. Yehuda Pinchover*

PROFESSORS EMERITI

Prof. Abraham Berman

TEACHING STAFF UNION

Aviv Sharon

FACULTY ASSOCIATION

Prof. Eyal Zussman

ORGANIZATION OF PRACTICAL ENGINEERS (HANDESSAIM)

David Avi

M4 ORGANIZATION: THE ACADEMIC EMPLOYEES UNION AT THE TECHNION

Zvi Bar-Deroma

UNION OF THE ADMINISTRATIVE WORKERS AT TECHNION

Aliza Blasberg

ORGANIZATION OF TECHNION PENSIONERS

Moshe Barak

STUDENTS ASSOCIATION

Undergraduate Students

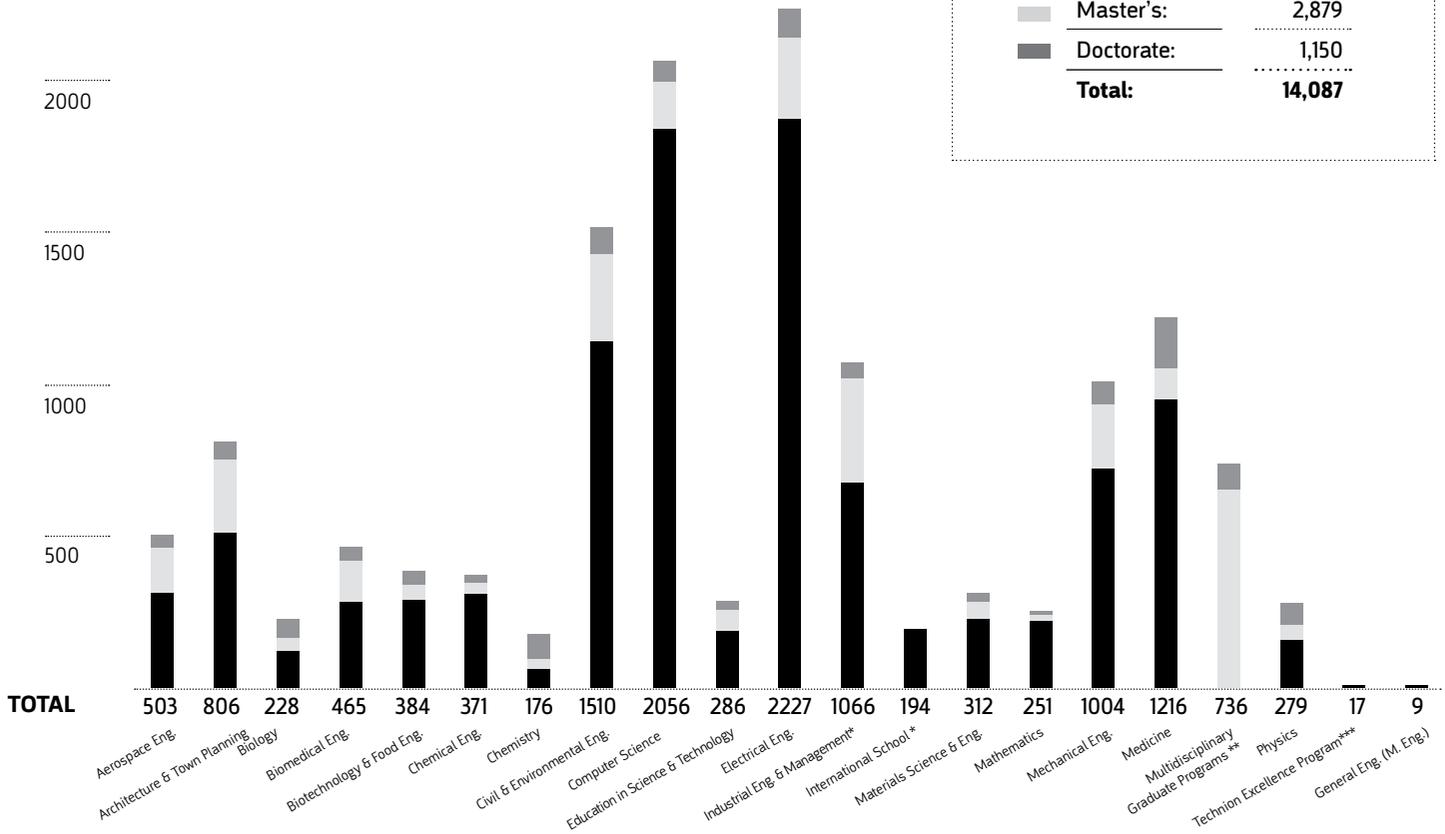
Amir Gerti
 Ido Weiser-Bitoun

Graduate Students

Amir David Nissan Cohen
 Asaf Hershkovitz

FACTS & FIGURES

NUMBER OF STUDENTS 2017/2018



Bachelor's:	10,058
Master's:	2,879
Doctorate:	1,150
Total:	14,087

* Including 217 MBA students, 53 of whom are externally funded

** Applied Mathematics; Autonomous Systems & Robotics; Biotechnology; Design & Manufacturing Engineering; Energy; Polymer Engineering; Nanoscience & Nanotechnology; Real Estate Studies; Systems Engineering; Urban Engineering; and Vehicle Systems Engineering

*** First year intake and not including medical students

FAST FACTS 2018

FOUNDED: 1912
STUDENT POPULATION: 14,087
ACADEMIC DEPARTMENTS: 18
UNDERGRADUATE PROGRAMS: 50
GRADUATE PROGRAMS: 83
DEGREES AWARDED: 113,873
FACULTY: 565
TECHNICAL AND ADMINISTRATIVE STAFF: 1,083
RESEARCH CENTERS: 60
BUILDINGS ON CAMPUS: 106
BUILT-UP AREA: 467,537 m²
DORMITORY BEDS: 4,977

DEGREES AWARDED (GRADUATES)

	2017	2018
Bachelor's	1,951	1,967
MD	146	148*
Master's	894	908
PhD	243	216
TOTAL	3,234	3,239

* Including 36 on the Technion American Medical School Program

TOTAL DEGREES AWARDED (1924-2018)

Bachelor's	82,728
MD	2,861
Master's	22,693
PhD	5,591
TOTAL	113,873

TOTAL STUDENT POPULATION

	2015	2016	2017	2018
BSc	9,503	9,536	9,819	9,622
MD	459	476	501	436
MSc	2,886	3,127	3,105	2,879
PhD	1,078	1,147	1,113	1,150
TOTAL	13,926	14,286	14,538	14,087

FISCAL OVERVIEW

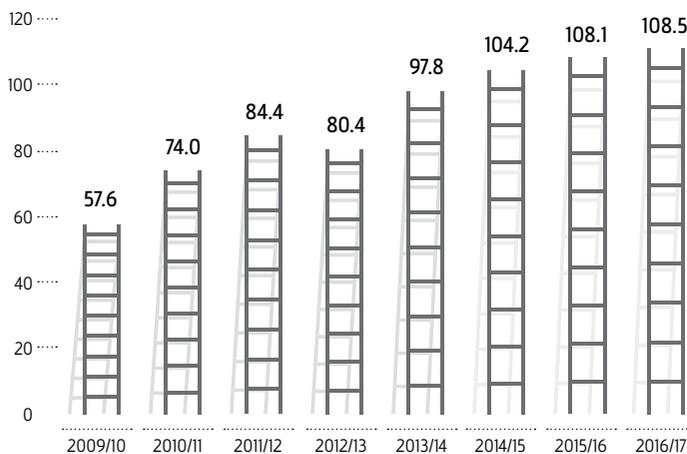
OPERATING BUDGET 2017/2018

October 1, 2017 - September 30, 2018

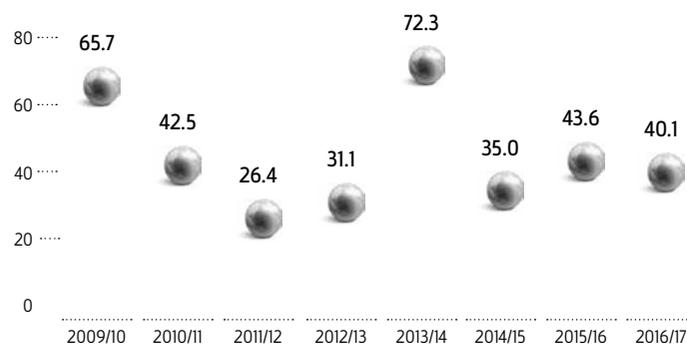
INCOME	Thousands of NIS	%
Government Allocation	1,067,123	70.7
Self Income	222,000	14.7
Tuition Fees	126,000	8.3
Technion Societies	68,800	4.6
Deficit	25,598	1.7
Total Income	1,509,521	100%
EXPENDITURE		
Staff Emoluments	760,914	50.4
Pension Payments	287,652	19.1
Operating Expenses	225,471	14.9
Maintenance	121,340	8.0
Student Aid	114,144	7.6
Total Expenditures	1,509,521	100%

(*) The actuarial liability of the Technion as of September 30, 2017 was NIS 6.0 billion.
The consolidated liability (Technion and TRDF) is NIS 6.5 billion.

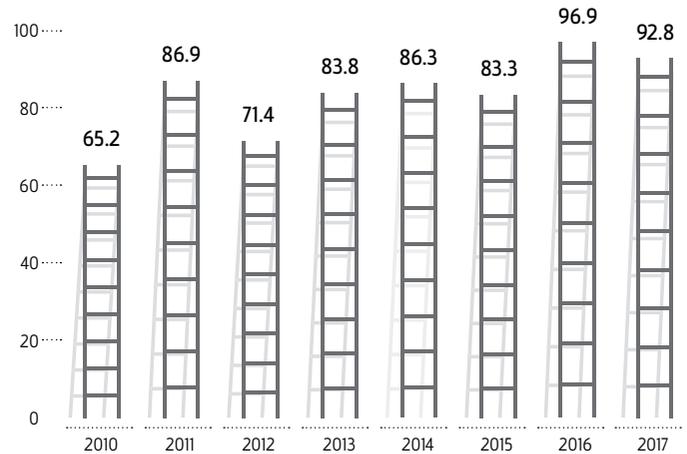
TOTAL INCOME FROM TECHNION SOCIETIES (\$US M)



DEVELOPMENT EXPENDITURE (\$US M)



SPONSORED RESEARCH FROM EXTERNAL SOURCES (\$US M)



TECHNION INVESTMENT

	Millions of NIS	%
CPI Linked Investments	3,068	47
Stocks	1,850	29
Shekel Unlinked Investments	1,027	16
Foreign Currency Investments	503	8
Total	6,448	100%

DEVELOPMENT EXPENDITURE 2016/2017

October 1, 2016 - September 30, 2017

	Thousands of \$US	%	Thousands of NIS*
Buildings, Renovations & Infrastructure	25,433	63.4	93,481
Multidisciplinary Research Centers	5,731	14.3	21,903
Laboratories & Equipment	8,926	22.3	32,392
Total	40,090	100%	147,776

* \$US 1 = 3.529 NIS

LEADERSHIP



Lawrence Jackier
Chairman of the Board
of Governors



Gideon Frank
Chairman of the Council



Prof. Peretz Lavie
President



Prof. Adam Shwartz
Senior Executive
Vice President



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Executive Vice President
for Academic Affairs



Prof. Wayne Kaplan
Executive Vice President
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Matanyahu Englman
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and Director General



Prof. Zalman Palmor
Executive Vice President
and Director General Elect



Prof. Boaz Golany
Vice President for External
Relations and Resource
Development

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Dean of the Jacobs Graduate School
Prof. Dan Givoli

Dean of the Azrieli Division of
Continuing Education and
External Studies
Prof. Zeev Gross

Dean of Students
Prof. Benveniste Natan

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and Food Engineering
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Faculty of Computer Science
Prof. Dan Geiger

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Department of
Humanities and Arts
Prof. Efraim Lev

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Engineering and Management
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and Engineering
Prof. Yair Ein-Eli

Faculty of Mathematics
Prof. Michah Sageev

Faculty of Mechanical Engineering
Prof. Yoram Halevi

Rappaport Faculty of Medicine
Prof. Shimon Marom

Faculty of Physics
Prof. Ehud Behar

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Institute of Technology
**Vice Chancellor, Distinguished
Prof. Aaron Ciechanover**

Joan and Irwin Jacobs
Technion-Cornell Institute
Prof. Ron Brachman

Assistant to the President for Strategic
Projects and Technion International
Prof. Paul Feigin

Technion Program for Excellence
Prof. Michael Elad

Center for Pre-university Education
Prof. Noam Soker

ADDITIONAL OFFICERS

Deputy Senior Vice President
Prof. Alon Hoffman

Deputy Vice President
for Research
Prof. Anath Fischer

Deputy Vice President for Research
for the Pre-Clinical Research Authority
Prof. Jackie Schiller

Deputy Vice President
for Academic Affairs
Prof. Avi Ostfeld

Deputy Vice President for
Computing and Information Systems
Prof. Reuven Cohen

Deputy Vice President for Safety Matters
Prof. Yaacov Mamane

Deputy Director General for Finance
Dganit Shindelman

Deputy Director General
for Human Resources
Ariel Hazan

Deputy Director General of Operations
Zehava Laniado

ACADEMIC HEADS

Faculty of Aerospace Engineering
Prof. Itzhak Frankel

Faculty of Architecture
and Town Planning
Prof. Iris Aravot

Faculty of Biology
Prof. Yehuda Assaraf

Faculty of Biomedical Engineering
Prof. Shulamit Levenberg

FACULTY

ACADEMIC FACULTY 2018

Faculty	Individuals	Full Time Equivalent (FTEs)
Full Professor	225	224
Associate Professor	155	154
Assistant Professor	166	163
Lecturer	5	5
Others	14	13.5
Total	565	559.5
Clinical Track Appointments	306	114
External Adjuncts	831	283

NEW FACULTY APPOINTMENTS

AEROSPACE ENGINEERING

Joseph Lefkowitz
Assistant Professor

Oksana Stalnov
Assistant Professor

BIOTECHNOLOGY AND FOOD ENGINEERING

Omer Yehezkeili
Assistant Professor

CHEMISTRY

David Eisenberg
Assistant Professor

Graham de Ruiter
Assistant Professor

EDUCATION IN SCIENCE AND TECHNOLOGY

Dr. Zehavit Kohen
Lecturer

COMPUTER SCIENCE

Shachar Itzhaky
Assistant Professor

ELECTRICAL ENGINEERING

Ittay Eyal
Assistant Professor

Ilya Goykhman
Assistant Professor

Daniel Soudry
Assistant Professor

INDUSTRIAL ENGINEERING AND MANAGEMENT

Izack Cohen
Assistant Professor

Ofra Amir
Lecturer

Uri Shalit
Assistant Professor

MATERIALS SCIENCE AND ENGINEERING

Elad Koren
Assistant Professor

MATHEMATICS

Tali Pinsky
Lecturer

MEDICINE

Yonatan Butbul
Clinical Lecturer

Etty Daniel-Spiegel
Clinical Lecturer

Roni Dodiuk-Gad
Clinical Assistant Professor

Naama Geva-Zatorsky
Assistant Professor

Nitza Goldenberg-Cohen
Clinical Associate Professor

Dr. Rinat Gabbay-Benziv
Clinical Assistant Professor

Zvi Gutmacher
Clinical Lecturer

Riad Haddad
Clinical Assistant Professor

Iyad Khamaysi
Clinical Assistant Professor

Alona Paz
Clinical Lecturer

Michal Stein
Clinical Assistant Professor

PHYSICS

Shay Hacoen-Gourgy
Assistant Professor

Enrique Kajomovitz Must
Assistant Professor

AWARDS & HONORS 2017/2018*

INTERNATIONAL AWARDS AND HONORS

<p>AMERICAN SOCIETY OF MECHANICAL ENGINEERS</p> <p>> Frank Kreith Energy Award Prof. Emeritus Gershon Grossman Faculty of Mechanical Engineering</p>	<p>HOWARD HUGHES MEDICAL INSTITUTE (HHMI)</p> <p>> International Research Scholar Asst. Prof. Asya Rolls Rappaport Faculty of Medicine</p>	<p>INTERNATIONAL ASSOCIATION OF SURVEYORS (FIG)</p> <p>> Honorary Fellowship Prof. Emeritus Yerach Doytsher Faculty of Civil and Environmental Engineering</p>	<p>TECHNICAL UNIVERSITY OF MUNICH</p> <p>> Honorary Doctorate Prof. Orna Grumberg Faculty of Computer Science</p>
<p>EUROPEAN MOLECULAR BIOLOGY ORGANIZATION (EMBO)</p> <p>> Member Prof. Roy Kishony Faculty of Biology</p>	<p>INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)</p> <p>> Fellows Assoc. Prof. Alex Bronstein Faculty of Computer Science</p> <p>Visiting Prof. Avi Mendelson Faculty of Computer Science</p> <p>Prof. Assaf Shuster Faculty of Computer Science</p>	<p>INTERNATIONAL UNIVERSITY OF CATALONIA</p> <p>> Honorary Doctorate Assoc. Prof. Rivka Oxman Faculty of Architecture and Town Planning</p>	<p>UNIVERSITY OF FLORIDA</p> <p>> Distinguished Alumnus Award Technion President Prof. Peretz Lavie</p>
<p>HORIZON 2020: THE EU FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION - EUROPEAN RESEARCH COUNCIL GRANTS (ERC)</p> <p>> ERC Consolidator Assoc. Prof. Yuval Shaked Rappaport Faculty of Medicine</p> <p>Prof. Lior Gepstein Rappaport Faculty of Medicine</p> <p>Assoc. Prof. Gil Alexandrowicz Schulich Faculty of Chemistry</p> <p>> ERC Starting Grant Assoc. Prof. Keren Censor-Hillel Faculty of Computer Science</p> <p>Asst. Prof. Shahar Kvatinsky Viterbi Faculty of Electrical Engineering</p> <p>Asst. Prof. Asya Rolls Rappaport Faculty of Medicine</p> <p>Assoc. Prof. Uri Shapira Faculty of Mathematics</p>	<p>INSTITUTE OF INDUSTRIAL AND SYSTEMS ENGINEERING (IISE)</p> <p>> Book of the Year Award Prof. Avraham Shtub Davidson Faculty of Industrial Engineering and Management</p> <p>INTERNATIONAL ACADEMY FOR THE HISTORY OF PHARMACY</p> <p>> Medal Prof. Efraim Lev Department of Humanities and Arts</p> <p>INTERNATIONAL ASSOCIATION OF ADVANCED MATERIALS (IAAM)</p> <p>> Medal Prof. Emeritus Avraham Marmur Wolfson Faculty of Chemical Engineering</p>	<p>MINISTRY OF EDUCATION OF THE PEOPLE'S REPUBLIC OF CHINA</p> <p>> Changjiang Distinguished Professorship Prof. Hossam Haick Wolfson Faculty of Chemical Engineering</p> <p>NATIONAL ACADEMY OF CONSTRUCTION</p> <p>> First Honorary Member outside North America Prof. Aviad Shapira Faculty of Civil and Environmental Engineering</p> <p>SOCIETY FOR EXPERIMENTAL MECHANICS (SEM)</p> <p>> Lazan Award Prof. Daniel Rittel Faculty of Mechanical Engineering</p>	<p>WEB OF SCIENCE</p> <p>> Highly Cited Researchers Prof. Michael Elad Faculty of Computer Science</p> <p>Prof. Basil Lewis Rappaport Faculty of Medicine</p> <p>Prof. Shlomo Shamai (Shitz) Viterbi Faculty of Electrical Engineering</p>

ISRAELI AWARDS AND HONORS

AIR FORCE MUSEUM IN HATZERIM

- > **Competition Winner**
Assoc. Prof. Gaby Schwartz
Faculty of Architecture
and Town Planning

BLAVATNIK AWARD FOR YOUNG SCIENTISTS IN ISRAEL

Asst. Prof. Charles E. Diesendruck
Schulich Faculty of Chemistry

Assoc. Prof. Anat Levin
Viterbi Faculty of Electrical
Engineering

COUNCIL FOR HIGHER EDUCATION

- > **Allon Fellows**
Asst. Prof. Nadav Amdursky
Schulich Faculty of Chemistry

Asst. Prof. Naama Geva-Zatorsky
Rappaport Faculty of Medicine

Asst. Prof. Elad Koren
Faculty of Materials Science
and Engineering

Asst. Prof. Kinneret Tedorescu
Davidson Faculty of Industrial
Engineering and Management

EMET PRIZE FOR 2017

- > **For Computer and
Electronic Engineering**
Dist. Prof. Emeritus Jacob Ziv
Viterbi Faculty of Electrical
Engineering

ISRAEL CHEMICAL ENGINEERING ASSOCIATION

- > **Honorary Fellow**
Prof. Yachin Cohen
Wolfson Faculty of Chemical
Engineering

ISRAEL CHEMICAL SOCIETY

- > **Gold Medal Award**
Dist. Prof. Yitzhak Apeloig
Schulich Faculty of Chemistry

THE ISRAEL ACADEMY OF SCIENCES AND HUMANITIES

- > **Elected Member**
Prof. Yonina Eldar
Viterbi Faculty of Electrical
Engineering

THE ISRAEL YOUNG ACADEMY

- > **Elected Member**
Assoc. Prof. Eran Yahav
Faculty of Computer Science

UNIVERSITY OF HAIFA

- > **Honorary Doctorate**
Prof. Hossam Haick
Wolfson Faculty of Chemical
Engineering

THE MARKER

- > **40 Most Promising
under 40 in Israel**
Assoc. Prof. Keren Censor-Hillel
Faculty of Computer Science

MINISTRY OF CULTURE AND SPORT

- > **Arik Einstein Prize for Culture
and Arts in the Field of
Artistic Music**
Assoc. Prof. Dalia Atlas (ret.)
Department of Humanities
and Arts

- > **Prize in the Field of Plastic Arts**
Dr. David Behar-Perahia
Faculty of Architecture and
Town Planning

NATIONAL ASSOCIATION FOR RESEARCH IN SCIENCE TEACHING

- > **Elected President**
Prof. Tali Tal
Faculty of Education in Science
and Technology

BRUCE AND RUTH RAPPAPORT FOUNDATION

- > **Rappaport Prize for Excellence in
the field of Biomedical Research**
Prof. Shulamit Levenberg
Faculty of Biomedical Engineering

WOLF FOUNDATION

- > **2018 Krill Prize for Excellence
in Scientific Research**
Asst. Prof. Meytal Landau
Faculty of Biology

Asst. Prof. Charles E. Diesendruck
Schulich Faculty of Chemistry

Asst. Prof. Yakov Babichenko
Davidson Faculty of Industrial
Engineering and Management

YAD HANADIV (ROTHSCHILD FOUNDATION)

- > **Michael Bruno Memorial Award**
Prof. Ashraf Brik
Schulich Faculty of Chemistry

AWARDS & HONORS 2017/2018*

TECHNION AWARDS AND CHAIRS

DAVID DUDI BEN-AHARON RESEARCH PRIZE

Assoc. Prof. Mark Gandelman
Schulich Faculty of Chemistry

COOPER AWARD FOR EXCELLENCE IN RESEARCH

Assoc. Prof. Anat Levin
Viterbi Faculty of Electrical Engineering

ALEXANDER GOLDBERG RESEARCH PRIZE

Asst. Prof. Barak Fishbain
Faculty of Civil and Environmental Engineering

HENRI GUTWIRTH FOUNDATION RESEARCH GRANTS

Asst. Prof. Guy Ramon
Faculty of Civil and Environmental Engineering

Asst. Prof. Meytal Landau
Faculty of Biology

Dr. Oksana Stalnov
Faculty of Aerospace Engineering

UZI AND MICHAL HALEVY INNOVATIVE APPLIED ENGINEERING AWARD AND RESEARCH GRANTS

Prof. Yair Ein-Eli
Faculty of Materials Science and Engineering

Assoc. Prof. Alon Wolf
Faculty of Mechanical Engineering

Asst. Prof. Igal Kronhaus
Faculty of Aerospace Engineering

JULUDAN RESEARCH PRIZE

Asst. Prof. Shelly Tzliil
Faculty of Mechanical Engineering

RAYMOND AND MIRIAM KLEIN RESEARCH PRIZE

Assoc. Prof. Elon Rimon
Faculty of Mechanical Engineering

HILDA AND HERSHEL RICH TECHNION INNOVATION AWARDS

Asst. Prof. Yuval Cassuto and Rami Cohen
Viterbi Faculty of Electrical Engineering

Assoc. Prof. Mark Gandelman, Dr. Gennady Nisnevich and Alexander Artaryan
Schulich Faculty of Chemistry

Asst. Prof. Shahar Kvatinsky and Danial Loai
Viterbi Faculty of Electrical Engineering

Assoc. Prof. Josue Sznitman and Yan Ostrovski
Faculty of Biomedical Engineering

Prof. Daniel Rittel and Assoc. Prof. Nitai Drimer
Faculty of Mechanical Engineering

Prof. Michael S. Silverstein and Sebastijan Kovacic
Faculty of Materials Science and Engineering

NORMAN SEIDEN PRIZE FOR ACADEMIC EXCELLENCE

Prof. Israel Cohen
Viterbi Faculty of Electrical Engineering

DIANE SHERMAN PRIZE FOR MEDICAL INNOVATIONS FOR A BETTER WORLD

Prof. Amit Meller
Faculty of Biomedical Engineering

HENRY TAUB PRIZE FOR ACADEMIC EXCELLENCE

Prof. Ashraf Brik
Schulich Faculty of Chemistry

Assoc. Prof. Avner Rothschild
Faculty of Materials Science and Engineering

Prof. Michael S. Silverstein
Faculty of Materials Science and Engineering

Assoc. Prof. Jeff Steinhauer
Faculty of Physics

MOSHE YANAI AWARDS FOR EXCELLENCE IN EDUCATION

> **Faculty Prize: Civil and Environmental Engineering**
Assoc. Prof. Gil Alexandrowicz
Schulich Faculty of Chemistry

Asst. Prof. Ram Band
Faculty of Mathematics

Prof. Michael Elad
Faculty of Computer Science

Asst. Prof. Mahmood Jabareen
Faculty of Civil and Environmental Engineering

Assoc. Prof. Josue Sznitman
Faculty of Biomedical Engineering

> **Teaching Initiative Grant:**
Assoc. Prof. Yossi Gil
Faculty of Computer Science

> **Honorable Mention:**
Asst. Prof. Omri Barak
Rappaport Faculty of Medicine

LEADERS IN SCIENCE AND TECHNOLOGY and CAREER ADVANCEMENT CHAIRS

> **Career Advancement Chair at Technion**
Asst. Prof. Kinneret Teodorescu
Davidson Faculty of Industrial Engineering and Management

> **Career Advancement Chair in Economics and Finance**
Asst. Prof. Yakov Babichenko
Davidson Faculty of Industrial Engineering and Management

> **Leona Chanin Career Development Chair**
Asst. Prof. Lior Kornblum
Viterbi Faculty of Electrical Engineering

> **HOREV FELLOWS**
Asst. Prof. Naama Geva-Zatorsky
Rappaport Faculty of Medicine

Asst. Prof. Graham de Ruiter
Schulich Faculty of Chemistry

> **Jacques Lewiner Career Advancement Chair**
Asst. Prof. Ido Kaminer
Viterbi Faculty of Electrical Engineering

> **David and Inez Myers Career Advancement Chair in Life Science - Lee Kohrman**
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> **Robert J. Shillman Career Advancement Chair**
Asst. Prof. Shay Hacoheh-Gourgy
 Faculty of Physics

TAUB FELLOWS

Asst. Prof. Elad Koren
 Faculty of Materials Science and Engineering

Asst. Prof. Daniel Soudry
 Viterbi Faculty of Electrical Engineering

NEW CHAIR INCUMBENTS

> **Bertha Axel (nee Hertz) Chair in Chemistry**
Prof. Noam Adir
 Schulich Faculty of Chemistry

> **Otto Barth Family Chair in Biomedical Sciences**
Prof. Elon Eisenberg
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Prof. Amos Nevo
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> **Lord Leonard Wolfson Academic Chair**
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...and the rest is history



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