

TECHNIONNEWS

Newsletter of Technion Canada
Fall 2015



TECHNION PARTNERSHIPS ABOUND ACROSS THE LAND

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Message from

DOREEN GREEN

National Chair

*Amazing Things Happen
When We Work Together*

Technion - Israel Institute of Technology - one of the world's top science and technology research universities. It is not only the students, faculty and researchers

who have been responsible for advancing innovation for Israel and the world, but also those who have supported Technion for over 100 years have made this possible.

Technion Canada is proud of its long history of support for Technion - support from donors who feel a particular interest in an area of research or study at Technion, or understand the need to provide financial assistance to students, or see the need for additional or renovated facilities.

On behalf of Technion and Technion Canada, I want to thank some of the people who have generously made commitments this past year based on their individual interests and desired level of support.

Technion Canada Board Member, Melissa Singer introduced Technion to Leesa Steinberg. After learning about Technion, Leesa has pledged to create the Leesa Steinberg Fund to Support the Control Room in the Wind-Tunnel Complex in the Faculty of Aerospace Engineering - Israel's only Faculty of Aerospace Engineering. The importance of this faculty to Israel's defense and economy cannot be overemphasized. This fund will allow Technion to remain at the cutting edge of research and serve Israel's needs and enable modern experiments to address the challenges of the 21st century.

A strong supporter of the Technion for many years, Harry Sheres' most recent commitment has been to create a Fund to Support the Renovation of Technion's Ohel Aharon Synagogue.. The Synagogue is the heart of Jewish spiritual life on campus and it is important to maintain it so that activities can continue. Support of the synagogue is an investment in the community that gives a Jewish character to the science and technology environment of the Technion.

The Bloomfield Family have been a part of the Technion Family for close to 40 years. Among their many projects is the Bloomfield Building which houses the Faculty of Industrial Engineering & Management at the Technion. The Main Auditorium of the building is in need of renovation in order to bring it to the standards of today's student needs. Harry Bloomfield has responded to the need and is in the midst of ensuring that the necessary renovations are done.

Let us share some of the many similar opportunities with you in order to find the project that matches your interest.



Message from

MARVIN OSTIN

National President

*Working together.
Building Success*

It is now globally accepted that institutional partnerships and collaborations are an essential ingredient for connecting institutions

in an increasingly globalized world and for sharing and disseminating knowledge and expertise.

Technion has partnerships with several Canadian Universities - Concordia University (The Goldie and Joe Raymer Endowment Fund supports exchange students and faculty members from all Academic Departments), University of Toronto (The Summer Research Program, CREMS, is a unique research program that allows medical students to gain extracurricular research experiences in various structured programs without interrupting their medical studies), McGill University (Semester abroad in general course studies), University of British Columbia (University wide exchange program), as well as a large number of leading universities around the world. Read more details about our exciting institutional partnership developments on pages 4 and 5.

It isn't only institutional partnerships that are important. Technion Alumni create the University's reputation, which relies in large part on how successful their graduates are in the real world. Technion Canada has been focusing on finding and recruiting Technion Alumni to become involved in programs, outreach and fundraising. In Toronto recently, a networking event was held and currently a breakfast program is being planned for the October visit of Prof. Boaz Golany, Technion Vice President for External Relations and Resource Development. In Montreal a small Coffee and Conversation get together was recently held and plans re under way to enlarge of the group. Technion Alumni are the best partners Technion Canada could have to help spread awareness of Technion's important role in shaping and redefining technology.

There is no better partnership than that between Technion Canada's Generation Now and Generation NEXT to ensure that future Technion students are among the next pioneers of global scientific research and innovation. Our Generation NEXT initiative has been nurtured by programs at which a leading Canadian Philanthropist explained why he is a supporter of Technion and recent Technion graduates have shared their experiences. Through subsidized Generation NEXT trips to Israel participants have seen Technion's part in Israel's Hi-Tech revolution from Jaffa oranges to semi-conductors.

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A strong supporter of Technion and Israel Morley Blankstein Z"l 1924-2015

When asked how he first became involved with the Technion, Blankstein answered, "Judge Roy Matas and Archie Micay recruited me in the early 60s, and also because the only school of architecture in Israel was at the Technion."

Morley and Marjorie Blankstein funded the Morley Blankstein Visiting Lecture in the Faculty of Architecture and Town Planning at Technion.

The Lectureship was designed to be a very important stimulating educational experience for architectural students today, as it was for him when he was a student of architecture who was exposed to world class architects.

The Lectureship not only brings internationally famous architects to Technion to give a public lecture on his or her work, but enables lecturers to spend some time with architectural students informally in their lab, discussing architecture in its various forms and purposes.

The inaugural Lecture took place in 2009, and the first guest speaker was the internationally acclaimed Canadian architect Jack Diamond, OC and a recipient of the Royal Architectural Institute of Canada's Gold Medal, respectively the highest civilian and professional honours a Canadian can achieve.

Subsequent guest lecturers have been renowned architect and a native of Haifa, Moshe Safdie, Los Angeles Architect, Raymond Moriyama CC, O. Ont, Thom Mayne 2005 Pritzker Architecture Prize laureate, Adriaan Gueze, urban planner and landscape architect from Rotterdam, Netherlands and Swiss architect, Roger Diener.

Morley will be deeply missed by the Technion Canada Family and our sincere condolences are extended to Marjorie Blankstein and her children, Carol and Barry McArton, Dan Blankstein and Sara Israels, Linda Blankstein and Mesut Senoglu, Leo and Mary Blankstein, and Max Blankstein.

Technion Canada was saddened to learn of the passing of Morley Blankstein, FRAIC, MSA, RCA, a retired award winning architect.

Born in Winnipeg, architect Morley Blankstein was a founding member of Blankstein Coop Gillmor Hanna (later part of Number Ten Architectural Group) and as a citizen, Morley had a profound effect on life in Winnipeg. He attended St. John's Technical High School and began pre-architecture courses at the University of Manitoba in 1941. This study was delayed by his service in the Royal Canadian Air Force during the Second World War. Recommencing his education upon his return, Morley received his Bachelor of Architecture from the University of Manitoba in 1949. His first-year project, a roadside tourist information bureau with a lunch counter, was a glass and steel-framed structure in a Modernist vein. The design was considered to be also one of the best in his class.

Morley, was a long time supporter of Technion Canada serving as Past President of the Winnipeg Chapter of the Canadian Technion Society, Honorary Vice Chair of Technion Canada and Honorary Life Member Technion - Israel Institute of Technology Board of Governors. He received an Honorary Fellowship from the Technion in 1981.

REMEMBER OR HONOUR SOMEONE WITH A TRIBUTE CARD

Mark any special occasion or significant life event with a tribute gift – perfect for the hard-to-buy-for person. Sending a tribute card is a personal and meaningful way to say congratulations, thank you, get well or happy birthday.

It is always difficult to find a way to express your condolences when you've lost a good friend or a loved one. Sending a tribute card is an excellent way to honour the memory of someone special.



TECHNION ALUMNI

Thanks to the rigorous and broad-based education students receive at the Technion, its graduates go on to create high-tech start-ups, pursue novel scientific research and hold key management positions in companies across a variety of fields.

If you are interested in playing a role in developing a strong Technion Alumni presence in Canada, contact Paul Raducanu at paulrad40@gmail.com.

UHN INTERNATIONAL CENTRE FOR CARDIOVASCULAR INNOVATION (ICCI)



GORDON KELLER, PHD
Senior Scientist
Princess Margaret Cancer Centre



DR BARRY RUBIN
Medical Director
Peter Munk Cardiac Centre
University Health Network



DR. LIOR GEPSTEIN
Professor of Physiology and
Medicine (Cardiology)
at the Technion's Faculty of Medicine

This multidisciplinary collaborative partnership is uniquely positioned to be able to develop breakthrough technologies in cardiovascular regenerative stem cell medicine and to provide an environment where discoveries can be translated into defining the future of medical care.

The vision of the Technion – UHN ICCI is to lead the world in the development, evaluation, application and commercialization of novel treatments for heart disease; create and test new stem cell therapies and implantable devices that will treat patients with heart disease; and accelerate the translation of new therapies for heart disease to the marketplace in collaboration with industrial partners.

This unique partnership is representative of the future direction of Canadian health care; one in which individuals, foundations,

the private sector and government work together to support excellence in health care and research. Novel partnerships such as this will help to address Canada's significant innovation gap by creating new revenue streams that will contribute to the Canadian economy.

The combined efforts of scientists and doctors from Technion, the McEwen Centre for Regenerative Medicine and the Peter Munk Cardiac Centre represents enormous potential to provide a cure to millions of patients living with heart disease worldwide. Leveraging the skills of these three institutions, creating an environment that will promote a culture of discovery, innovation, excellence and commercialization of new therapies for heart disease, allowing leading physicians and scientists to drive advances in heart disease therapy.

UPCOMING PARTNERSHIP WITH THE HOTCHKISS BRAIN INSTITUTE AND CAMPUS ALBERTA NEUROSCIENCE



From left: Anthony Phillips, CIHR Institute of Neurosciences, Mental Health and Addiction; President Elizabeth Cannon, University of Calgary; Samuel Weiss, Hotchkiss Brain Institute, Hon. Michelle Remple; Cam Westhead; and Ambassador Rafael Barak

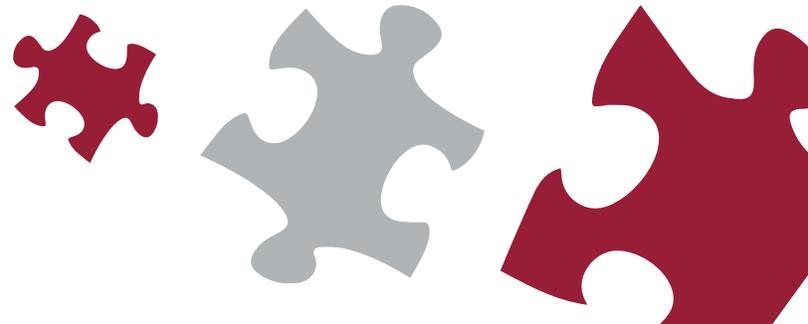
At Technion Canada we are committed to building international partnerships between Canada and the Technion – Israel Institute of Technology as an answer to attain goals in complex research.

The University of Calgary signed a formal partnership with Technion – Israel Institute of Technology this past spring. This partnership promises collaborative research in neurosciences and in the field of energy and clean technologies. This has broadened the Canadian partnerships into Western Canada.

This past June, the Hotchkiss Brain Institute and Campus Alberta Neuroscience hosted a Neuroscience Symposium in Banff, Alberta. This symposium held collaborative discussions with researchers from the Universities in Alberta, Calgary, Lethbridge, Hebrew University and Technion – Israel Institute of Technology.

"At the University of Calgary, we are partnering with the best from around the world to bring about changes in everything from basic science through to translational research," said University of Calgary President, Elizabeth Cannon while addressing the attendees.

"This is a kick-start towards the goal of nurturing mutual interests into meaningful collaborations. There is a great deal more to learn in the realm of brain and mental health that will only be achieved through collaborative approaches," stated Samuel Weiss, PhD, Director of the Hotchkiss Brain Institute.



LASSONDE SCHOOL OF ENGINEERING – HOME OF THE RENAISSANCE ENGINEER

The Lassonde School of Engineering is based at Toronto's York University. For the last two summers, the Technion-Lassonde Summer Exchange Program, eXpert, has provided close to fifty students the experience of three weeks in Israel to learn the ins and outs of becoming strong entrepreneurs. This program has now evolved into a semester program. For two months commencing in 2016, students will be part of a co-op program in Israel in Entrepreneurship or related fields. From March to June they will be at the Technion studying in one of two areas, Computer Science or Civil Engineering.

We are looking to seal this new Partnership in October 2015.

The partnership will also expand to include work between academics in the fields of Water (Desalinization and Reducing Organics) and IT/Robotics. Lassonde will also partner with Engineers Without Borders, a Technion based initiative.

The impact the student exchange has had on just one student is quoted as,

"... Israel is a country that would make you think about faith and satisfy your eyes with its spectacular sights.

The reason we went there though was not its beauty. "How is it that Israel – a country of 7.1 million, only sixty years old, surrounded by enemies, in a constant state of war since its founding, with

no natural resources – produces more start-up companies than countries ten times more powerful than it? ... They dream it, and they do it."

Over these three weeks, we learned how to be an entrepreneur. We learned to be business people from experts in that field. ... We visited various start-up companies and met many CEOs, stunned by their simplicity and passion for their work."

The partnership with Lassonde School of Engineering is growing and we are looking to a bright future with them.



THE UNIVERSITY OF WATERLOO AND TECHNION – ISRAEL INSTITUTE OF TECHNOLOGY PARTNERSHIP



President and Vice-Chancellor of the University of Waterloo, Feridun Hamdullahpur and Technion President, Prof. Peretz Lavie at the signing of a new research partnership in June at the Technion.

Excerpts from the University of Waterloo Press release.

"A \$1.6-million gift to the University of Waterloo and Technion-Israel Institute of Technology by The Gerald Schwartz & Heather Reisman Foundation is enabling world-changing research in a range of disciplines, including lung diseases and quantum computing.

"This gift shows what a partnership between two of the world's top innovation universities supported by the vision of Gerald Schwartz

and Heather Reisman can accomplish," said Feridun Hamdullahpur, President and Vice-Chancellor of the University of Waterloo. "This visionary donation is already allowing us to accelerate progress in the key areas of quantum information science, nanotechnology and water. Collaboration between Waterloo and Technion will lead to new innovations that will help to shape the future of communities, industries and everyday life."

Among the researchers the gift supports, Professor Frank Gu will expand his work into targeted drug delivery for eye diseases to include pulmonary diseases.

Targeted drug delivery uses nanotechnology to carry medicine directly to the diseased area improving the effectiveness of the treatment and minimizing side effects by reducing toxicity in other parts of the body.

The Waterloo-Technion Research Cooperation Program is also funding research into quantum computing. The ultimate goal of quantum information science is to build a scalable, universal quantum computer. A quantum computer will provide computational capabilities that cannot be achieved with classical computers for applications including database search, machine learning, drug design, information security and more.

One of the challenges of building a quantum computer is controlling the quantum systems to behave the way we want because they are extremely sensitive to any disturbance.

Technion Canada Generation Next

Shaping the Future of Technion

Technion Canada's Generation NEXT is your direct connection to Israel in the 21st Century.

Generation NEXT connects young leaders, ages 25-45 across Canada right to the heart of Israel's High-Tech sector. For over 100 years the Technion has been forward focused and has helped propel Israel in to the 21st century.

Generation NEXT offers young leaders the chance to get engaged by offering speakers, special events and trips to Israel supporting the Technion in Haifa.



2015 Generation NEXT Trip to Israel



MONTREAL GENERATION NEXT FALL NETWORKING EVENT



Montreal Generation NEXT's Fall Networking Event was held recently. The focus was on the Medical Program at Technion and three successful Technion graduates, Drs. Jon Cooperman, Neil Davis and Howie Liberman shared how their

education and experiences at Technion shaped their successful Medical careers and lives today. The event was co-chaired by Jewel Perlin PhD and Whitney Sommer. The next event is planned for November and if you would like more information please contact nextmtl@technioncanada.org.

INTRODUCING MONTREAL GENERATION NEXT NEW CO-CHAIRS



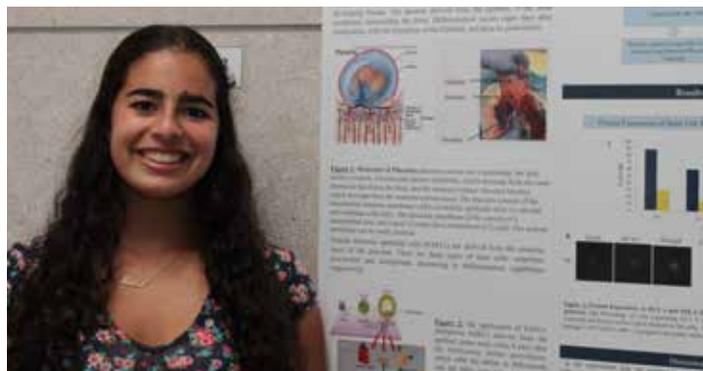
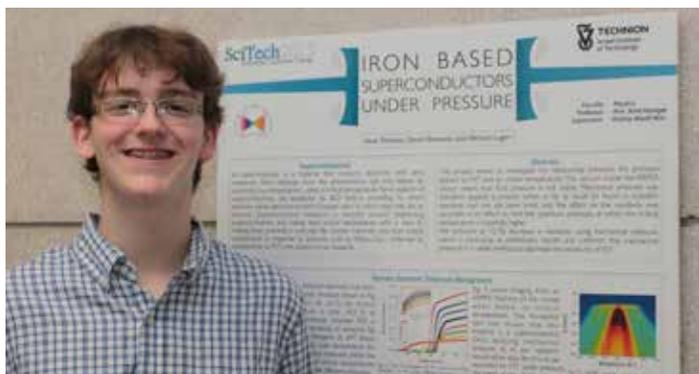
Lorne Rashkovan



Angela Chepurnoy

TECHNION SUMMER PROGRAM FOR GRADE 11 AND GRADE 12 STUDENTS

SciTech
Summer Science Camp



My name is Michael Luger, from Montreal, Quebec. I am 17, have just recently completed my secondary school education at Bialik High School, and am beginning my career at Vanier College where I am studying computer science and mathematics.

Over the past few years, I've had various community-volunteering opportunities, including with the Friendship Circle and JPPS-Bialik. These experiences have allowed me to strengthen my relationship to the communities around me.

As a student, I am very passionate about mathematics and sciences, particularly physics, as well as, to a lesser extent, chemistry. In a bid to further my understanding of these subjects, I sought out to work with high-temperature superconductors at the Physics building of the Technion campus in Israel.

To be honest, the idea wasn't initially too appealing. Traveling all the way to Israel to live on a campus (with my picky tastes in food, no less) with people I've never met before was a scary proposition. But considering that I had nothing else to do over the summer, I applied, and eventually found out that I had been accepted with a full tuition scholarship with the help of the Wolf Family Foundation. With that settled, it was time to get to work.

My time at the Technion was devoted primarily to working in two labs: one on the first floor (which is technically two floors below the main entrance) and the other on the fifth floor. Our goal was to see if a certain material - Ferrum Selenium Tellurium - would super conduct at higher temperatures when applied with pressure. In the fifth floor's lab, we would prepare the necessary tools for measuring the pressure applied on our sample and what its resulting electrical resistance was at the same time.

We ran into many difficulties, but we managed to deduce that the pressure we applied - mechanical pressure - would be an apt substitute for hydrostatic pressure, with which other researchers have already experimented. Unfortunately, hydrostatic pressure was out of the question due to a device we would use in conjunction with our sample that required a vacuum 10-100 times more perfect than the vacuum of space.

In the end, the program was an incredible experience, and we worked hard to generate new data in high-tech labs. We learned how arduous and error-prone the scientific process is, and all the participants in the program developed great friendships, both within and between the research assignments.

My name is Isabel Hazan, and I am from Toronto, Ontario. At 17, I am going into my senior year of high school, studying at TanenbaumCHAT. I have been in the Jewish education system my entire life, and consider myself extremely lucky to have had many unique opportunities that allowed me to grow as an individual. Because I believe in the importance of contributing to the Jewish community, I have volunteered at my elementary school, Bialik Hebrew Day School, as well as at the Lodzer Synagogue. Both experiences have been truly rewarding.

Academically, I thoroughly enjoy studying the sciences, especially biology. I found that this past year of learning was especially interesting for me because I got to study biology, chemistry and physics simultaneously. I took a real interest in biology, which is why I chose to research the medical project that involved the study of stem cell biology at the Technion's SciTech program this summer.

I chose to apply to the Technion SciTech program because of the unique opportunity that it provides for students interested in the sciences. At SciTech, participants were able to engage in hands-on research regarding specific topics we were interested in. In my case, I studied the applications of human amniotic epithelial cells in stem cell biology and regenerative medicine.

During our research, we were able to actually work with a real placenta, extracting the cells we needed, and then culturing them and observing them under a microscope. This was an extremely interesting and educational project, which I learned a great deal from. In addition to the incredibly educational and advanced level of research we were doing, SciTech provided a fantastic social atmosphere where we were able to develop relationships with a fascinating group of students from all over the world. We had social activities every night, as well as a few overnight trips around Israel to places such as Jerusalem, a kibbutz and the northern part of Israel. I have now made friends in several countries including the U.S., Australia, Italy, and Israel, and plan on visiting many of them in the future.

I am extremely grateful that I was able to have the incredible experience of attending the Technion SciTech program. I would highly recommend the program to other students, as I think it was one of the most interesting and unique experiences I have ever had. I was extremely lucky to receive the Wolf Family Bursary, which allowed me to be involved in this wonderful program. I encourage anyone who is interested in the program to look into it, and apply, so we can have some more Canadian representatives there!

If you live anywhere in Canada, and are a science-oriented high-school student in the 11th or 12th grade with a proven record of academic excellence, then the SciTech International Summer Program may be for you. The program is intended for all those with a keen interest in science and a commitment to high performance standards. Those who can benefit the most from the Technion's atmosphere of excellence will be selected.

Please e-mail Technion Canada at: info@technioncanada.org or call: 1-800-935-8864 for more information about the Wolf Family Scholarship



The future of Israel is in high-technology and the future of high-technology in Israel is at Technion.

TECHNION TRIUMPHS

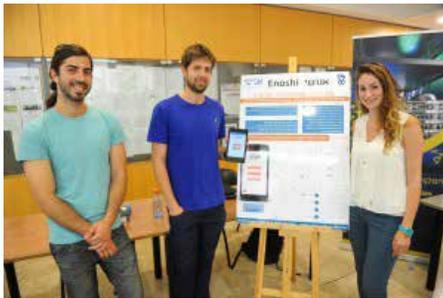
RobotDrink, the Automatic Bar Tender



Three students from the Technion Faculty of Computer Sciences have developed ROBOTDRINK, a robot bartender that at the press of a button serves a variety of cocktails. The robot was designed by Michal Friedman,

Yoav Mizrahi and Zorik Gechman as part of an Arduino systems programming course, under the guidance of Prof. Yossi Gil, tutorial teachers Boris van Sosin and Marina Minkin, and Dr. Nir Levy, Academic Relations Director at Microsoft.

Social Networking for Volunteers



Students from the Faculty of Computer Science at the Technion developed an innovative social volunteering platform that aids volunteers, volunteer organizations and those in need. The "Enoshi" ("humane"

in Hebrew) platform is based on the 'wisdom of crowds' and on information exchange, and facilitates effective volunteer management including the linkage between volunteers and people in need of assistance. Today, the platform serves as a volunteer management network for Holocaust survivors, and its developers are hoping to expand into other areas of volunteer services.

"A person who chooses to volunteer discovers that searching for volunteer opportunities becomes a very cumbersome and often discouraging process," explains Technion student, Michal Burstein. "They must approach a voluntary association, announce their willingness to volunteer, and wait to be matched up with an appropriate assignment that can accommodate their volunteering schedule. Since each organization has its own pool of volunteers, the volunteer must turn to each of these organizations separately."

Technion Ranked 31st in the World in the US Academy of Inventors Index

The Technion received approval for 65 patents in the U.S. in 2014, the most of any Israeli university.

Researchers Use "Nanopore" Scanners to Find Early Signs of Cancer



The method is aimed at colorectal and lung cancers, which are difficult to diagnose in their earliest stage.

Using tiny "nanopore" scanners that can detect individual DNA molecules, Professor Amit Meller and colleagues are on the hunt for biological markers in cancer cells that may help clinicians diagnose colorectal and lung cancers at their earliest stages.

Prof. Meller, of the Faculty of Biomedical Engineering at the Technion-Israel Institute of Technology, leads a research group that is a partner in BeyondSeq, an international research consortium looking for new methods of decoding genetic and epigenetic information from medical samples. BeyondSeq, supported by a €6 million grant from Horizon 2020, the European Union's framework program, was one of only eight consortia chosen out of 450 submitted proposals.

"We are the only lab in the consortium working on early diagnosis of cancer biomarkers, which...will allow doctors to combat the cancers much more effectively and save human lives," Meller explained. "Currently there are no good ways to diagnose colorectal cancer and lung cancer at early stages. Usually these cancers are diagnosed at later stage (stage 2 or above) in which the patients may already have multiple secondary tumors, hence highly complicating treatment."

The nanopore technology developed by Meller and colleagues consists of tiny holes—about 100,000 times smaller than the thickness of a sheet of paper—drilled in ultra-thin silicon membranes. The researchers pass a current of electrically charged salt ions through the nanopore that attracts molecules such as DNA, which have their own natural electrical charge, toward the pores. The DNA molecules are threaded through the pore and as they slide from one side of the membrane to the other, the pore acts as a scanner. Both optical and electrical signals given off as the molecule passes through the pore are detected providing information on the DNA properties, such as its length and sequence variations.

Technion Alumni: The Driving Force of the Israeli Economy

The Neaman Institute study reveals: Over the past two decades Technion alumni became founders or managers of 1,600 companies that generated over \$30 billion and created some 100,000 jobs throughout Israel.