FOCUS ON THE BRAIN

Prof. Moshe Bar, Director of BIU's Leslie and Susan Gonda (Goldschmied) Multidisciplinary Brain Research Center
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Dear Friends,

This issue of BIU Today places a special focus on the brain. Each and every one of the articles within refers either in a specific way to the mind or to brain studies, or in a broader sense to the outstanding activities of Bar-Ilan University’s “brainy” researchers and academicians. First and foremost we celebrate a decade since the establishment of the Leslie and Susan Gonda (Goldschmied) Multidisciplinary Brain Research Center, featuring a revealing interview with the Center’s new Director.

In the hard sciences there are articles on researchers who are editing genetic information as a key to cognitive evolution; using nanomagnetism in medicine; employing “smart-coding” for beating cyber terrorism; studying genetics of the brain for understanding long-term, post traumatic changes in human behavior; creating technologies that communicate or draw inspiration from biological assemblies; and using a biophysical tool to look at some of the most significant processes related to metal ion transport in health and disease.

In the humanities, social sciences, Jewish studies and law we shed light on the works and activities of an open-minded, internationally renowned musician; a psychological study of how children interpret what we tell them; the work of a political scientist who aims to lift the veil on Middle East politics and culture; the new Law Dean’s take on marriage and divorce in Israel; procedures for pluralism in the law courts; how Biblical texts have changed the way people think; and mindful archaeological digs which have unearthed more evidence about our Jewish heritage.

In addition, herein we highlight four “brainy” students and graduates in the sciences, music and social work, who have all benefited from special BIU scholarships, as well as the achievements of a remarkable Bar-Ilan alumna whose success in finding effective treatments for sufferers of post traumatic stress disorder garnered recognition in a Time Magazine list of the “100 Most Influential People in the World!”

Sincerely,

Moshe Kaveh
Prof. Moshe Kaveh
President

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Measuring magnetic fields produced by the brain in the Gonda Brain Center’s MEG facility.
A Decade of Discovery at the Gonda (Goldschmied) Multidisciplinary Brain Research Center

On July 25, 1989, President George Bush signed a resolution declaring the 1990s to be “The Decade of the Brain,” signaling America’s commitment to neuroscience research. In another event that was a decade in the making, Bar-Ilan now celebrates the tenth anniversary of one of its flagship institutions: the University’s Leslie and Susan Gonda (Goldschmied) Multidisciplinary Brain Research Center.

The Gonda Center is devoted to solving the scientific world’s biggest puzzle: how the human brain allows us to perceive and understand the environment, while generating our memory, thoughts and emotions. Today, over 30 senior researchers pursue their goals in the Gonda Center’s magnificent North Campus building, designed as an architectural expression of the Center’s ultimate goal: to provide a fully integrated research and teaching environment where scientists trained in a variety of fields build a common language in order to work – and succeed – together.

“In brain research, a multidisciplinary approach is essential for success,” says Prof. Moshe Abeles, a world-renowned expert on the precise timing of neuronal activity in the cerebral cortex, who spearheaded the effort to establish the Center and served as its founding Director until last year. “It’s relatively simple to take researchers trained in biology, physics, medicine, psychology, statistical mechanics, computer science, learning and language, and put them all in one room,” Abeles says with a smile. “But unless you bridge the knowledge gaps between them, they won’t be able to truly work together because they simply don’t speak the same language.”

According to Abeles, the Gonda Center is the fulfillment of a dream. Not only does the physical space induce cooperation between scientists - each floor is built to house a heterogeneous suite of labs including spaces for wet biology, biophysics, cognitive science, psychology, and neuroscience theory – its educational program does something unprecedented: it requires graduate students to take introductory courses that provide them with the broad knowledge needed to collaborate with their colleagues and move neuroscience forward.

Since the beginning of this year, the Center’s Director has been Prof. Moshe Bar, one of the world’s leading researchers in cognitive neuroscience. Prior to joining the faculty at Bar-Ilan, Prof. Bar served as associate professor in psychiatry and radiology at Harvard Medical School, and associate professor in psychiatry and neuroscience at Massachusetts General Hospital. He also directed the Cognitive Neuroscience Laboratory at the Athinoula A. Martinos Center for Biomedical Imaging. Prof. Bar’s research focuses on how the brain extracts and uses contextual information to generate predictions and efficiently guide cognition.
“We have very ambitious plans, based both on the talented people who are already here on staff, and on the new faculty we hope to recruit in the future.”
A Unique Educational Approach

Prof. Bar – whose undergraduate training in electrical engineering, Masters in computer science, and PhD in cognitive psychology make him a “poster child” for multidisciplinary science – says that the education received by Gonda Center graduate students is unlike anything available anywhere else in the world. “We require our incoming students to pass courses in subjects including mathematics, physics, computer science, cell biology, neurochemistry, cognitive psychology, and language, to ensure that everyone is equipped to see the big picture,” he says, adding that this approach gives students from a variety of backgrounds the ability to work effectively with their colleagues. “The proof is in the pudding: we receive over 60 applications every year, for a very limited number of places in the graduate school. We also have a highly competitive undergraduate program that provides students with an exposure to the fundamentals of brain science.”

In addition to their courses and lab work, graduate students at the Gonda Center can participate in a range of activities designed to broaden their perspective. The Center hosts weekly guest seminars with clinicians and research scientists, an annual retreat where students meet and discuss their work, and, international symposia – such as this past October’s “International Thoughts on Mind and Brain” which featured talks by Bar-Ilan professors as well as researchers from MIT, University College London, the University of Queensland, Collège de France and the University of California, Berkeley.

Research Achievements

But with all its focus on training tomorrow’s neuroscientists, the Gonda Center is best known for the discoveries that have emerged from its labs. Gonda scientists have made significant advances in areas ranging from child development, to artificial intelligence, to the development of drugs for fighting neurological disease. Here as well, a multidisciplinary environment has served as the “engine” behind many exciting discoveries.

In the Electromagnetic Brain Imaging Unit, for example, a research team that includes experts in psychology, neurophysiology, physics and cellular electrophysics is using a non-invasive technique called Transcranial Magnetic Stimulation, or TMS, to map brain functions related to language, emotion and memory. Breakthrough data emerging from these studies is helping to clarify the effect of magnetism on cells, neural networks in the brain and behavior, while creating new hope for the development of new and more effective treatments for neurological disorders.

Service to the Community

At the Gonda Center, the same facilities that support scientific research are also put to work for the good of society. In 2009, the University made a major, three million dollar purchase: a magnetoencephalograph (MEG) – a unique apparatus for measuring magnetic fields produced by the brain. The first of its kind in Israel and one of only a few dozen such facilities in the world, MEG uses a “whole head” helmet-style system to record and analyze magnetic fields produced by the brain.

Many Gonda Center scientists – including Profs. Bar and Abeles – use the MEG facility for their research, measuring magnetic fields to reveal how the brain uses contextual information, and how different brain regions coordinate their activities within any mental experience. But once a week, the MEG unit is turned over to helping others. In cooperation with Israel’s health funds, the Gonda Center opens its doors to the public – using the MEG apparatus to evaluate the condition of patients with brain tumors or intractable epilepsy, so they can get the treatment they need.

“The existence in Israel of this very rare device allows patients – who previously had to travel to medical centers overseas for costly clinical testing – to get the help they need right here,” says Prof. Abeles. “A startup company called Brain Map is creating the connection with hospitals, so that our facility can continue to make this contribution.”

Future Plans

As he looks towards the next ten years, Prof. Bar says that the Gonda Brain Center is well positioned to continue to achieve major advances in science, both in basic research, and in the “translational” discoveries that will be parlayed into practical treatments and techniques for improved health and well-being. “We have very ambitious plans, based both on the talented people who are already here on staff, and on the new faculty we hope to recruit in the future,” he says. “All-in-all, being at the multidisciplinary intersection of the last major frontier of science that is brain research, surrounded by superb intellectual talent and a host of exciting destinations, we feel fortunate and ready to work.”
One of biology’s most basic assumptions is that every cell in our body carries identical genetic information that can be changed only through mutations. But according to Dr. Erez Levanon, a Returning Scientist who joined the Mina and Everard Goodman Faculty of Life Sciences after completing post-doctoral research at Harvard Medical School, the genome – the totality of an organism’s hereditary information – is actually engaged in a constant “editing” process that results in significant differences in the genetic information of various body cells.

Editing occurs at high levels in the brain, and is believed to be associated with neurological disease. Studies in Dr. Levanon’s lab also point to a more intriguing possibility: that this type of editing occurs at the highest rate in the brains of primates – and may hold the key to the cognitive evolution that set human beings apart from the rest of the animal kingdom.

“Our work focuses on editing events in which one of the building blocks of DNA is transformed during transcription or cellular replication, and this, in turn is ‘mis-read’ by the cell’s internal machinery,” Levanon explains. “While this was once believed to be rare, our studies show that it’s actually quite common. We’ve also demonstrated that this type of editing – which seldom occurs in mouse, fish or insect models – happens extremely frequently in the brains of primates, a category that includes human beings. It is possible that this ‘reshuffling’ of the genetic code – which adds another level of complexity to our brains – gave humans an evolutionary advantage.”

Levanon’s group was the first to develop a screening technology that made it possible to identify the editing when it occurs. Using large genomic data sets, Levanon searched for clusters of mismatches between DNA and RNA, the single-stranded nucleic acid that transfers information from DNA to protein-forming machinery of the cell.

“We detected a comprehensive set of several hundred thousand human RNA editing sites,” Levanon says, adding that bioinformatics – a discipline that combines computer science, math, and information theory to model and analyze biological systems – has improved drastically in recent years. “In the 1990s, labs from around the world spent billions to complete the Human Genome Project. Today, it’s possible to analyze a complete genome for a few thousand dollars in a single lab. This jump in technology helped me move forward.”

According to Levanon, locating editing sites is an important first step toward identifying – and possibly, controlling – molecular changes that can affect neurological health. “Editing changes in DNA are clearly linked to neurological and behavioral issues in animal models,” he says, clarifying that no clinical studies have yet been performed on humans. “Working with physicians at
Our work focuses on editing events in which one of the building blocks of DNA is transformed during transcription or cellular replication, and this, in turn is ‘mis-read’ by the cell’s internal machinery.

Sheba Medical Center, we’re examining tissue samples taken from patients with various diseases. If we can link the editing change to the disease, this may eventually guide us toward new medical treatments.

In another project, Levanon is examining a genome-editing phenomenon mediated by retrotransposons – relics of past viral infections that belong to the category of “junk” DNA because, rather than coding for proteins, they are mostly inactive. But as Levanon explains, when retrotransposons do activate, the results can be dramatic.

“This virus-based material can copy itself into many random places along the genome, interfering with genomic integrity,” he says. “Studying this phenomenon we’ve discovered a dynamic in which a protein defends the genome from attack. Sort of like electronic warfare, this protein produces waves of error messages – random mutations – that neutralize the retrotransposon threat.”

Levanon’s work is providing new insight about the molecular-level changes that are at the root of biological diversity. “The main message coming out of our research is that the way cells process and pass down genetic information from generation to generation is more complex than once thought,” he says. “In a way, our work is helping to answer one small part of a very large question – how we came to be the way we are.”
Just as in music, people who believe in coexistence between cultures and who are open-minded can see the uniqueness in each culture, while at the same time finding the unifying and universal elements.

Prof. Taiseer Elias didn’t set out to become a cultural ambassador, but his passion and mastery of the oud — a musical instrument used in much of the Middle East — is doing just that. Elias, who has a PhD in musicology from Hebrew University and teaches in Bar-Ilan University’s music department, has almost single-handedly brought the oud to the forefront of the Israeli and world classical music scene, entertaining Jewish and Arab audiences alike.

A musician with a true mind of his own, among his accomplishments, Elias was one of the founders of the annual Oud Festival in Jerusalem; his performing group, Bustan Abraham, brings together both Jewish and Arab musicians; and Elias has accomplished a musical feat entirely unique: adapting the oud from an instrument used primarily for accompanying traditional Arab music (“a kind of bad pop music,” Elias says) to one that can be used as an integral part of Western classical music.

To wit, there are now concertos for oud and symphonic orchestra; concertinos for oud, piano and cello; and many more, some written by Elias himself and others written especially for him by both Israeli and international composers.

The 52-year-old Elias grew up and still lives in the Israel Arab community of Shfaram between Haifa and Nazareth. He first started studying Western classical violin and was accepted into Jerusalem’s prestigious Academy of Music and Dance. After receiving his PhD, he returned to found the institution’s Eastern Music department; he is now the chairman and he also teaches theory, violin and oud there.

Elias has received numerous prizes; perhaps the most prestigious was in 2008 when he was awarded the Frank Pelig Prize for outstanding musicians. “It was the first and only time an Arab musician received this prize,” he says. More recently, he was invited to join Itzhak Perlman as a master teacher in the iconic violinist’s Perlman Music Program. Perlman described him as “an extraordinary teacher [who] raises the level wherever he happens to be; he makes us all better.”

When he first started playing the oud, there were no conservatories or professional teachers for the instrument.
So his mastery of the instrument was essentially an extension of what he'd been learning on the violin. That's when he realized that there was no reason the oud couldn't be brought into classical music too. From there, he added other musical cultures: jazz, Flamenco, Indian.

Despite their very different origins, Arab and Western music actually share many attributes, Elias explains. For example, concurrence and non-concurrence between elements such as pitch and density "exist in all musical cultures. This creates emotional excitement." Another shared example is deviation from expectation or a sudden change in tempo or intonation. "That is, when the music doesn't go where we expect it to go. That creates tension, but also excitement as well."

What occurs in music also applies to relationships between people. Just as in music, "people who believe in coexistence between cultures and who are open-minded can see the uniqueness in each culture, while at the same time finding the unifying and universal elements," Elias says. "Music can tear down walls of hatred and misunderstanding. The musicians in Bustan Abraham and I became very close friends. We visit each other in our homes. When we are together, we don't think about being Jews and Arabs."

Such boundaries are also banished from his classes at Bar-Ilan, "Even when I teach about Arab music, I always relate it to other cultures," he explains. "So I make references to western music. That keeps it interesting." His students clearly appreciate it. "They really want to learn and, as a result, we have some very deep interactions. I feel proud being able to contribute to my students' improvement."

Elias’s passion for cross-cultural music had an added benefit: it was through Bustan Abraham that he met his wife. "She is a great singer and we collaborated together in the group and on TV," he says.

Music seems to run in his family. Elias’s eldest daughter is an award-winning pianist who has performed with the Haifa Symphony Orchestra ("you can see her on YouTube," the proud father says) and his 14-year-old son is a violinist who has performed as a soloist with the Camerata Orchestra. "That is, when I'm in great harmony with my family." Not surprisingly, Elias says that his happiest times are "when I'm in great harmony with my family."

That clearly applies to the greater family of all humankind.
“Materials that exhibit both superconductivity and magnetism are unique and interesting because these are properties that are generally considered to be mutually exclusive.”
Nanomagnetism – A Big “Draw” for Returning Scientist Beena Kalisky

The study of magnetism on the nanoscale is a hot topic for technologists hoping to create new materials for use in super-miniaturized electronic devices. But according to BIU alumna Dr. Beena Kalisky – a new faculty member in the Institute of Nanotechnology and Advanced Materials (BINA) who recently returned to Israel after completing post-doctoral research at Stanford University – another cool thing about nanomagnets is their potential for use in medicine. And that’s something that this brainy recruit – who usually focuses on the nanoscience underlying the properties of advanced materials – enjoys putting her mind to.

“My colleagues at Stanford achieved significant improvement in the medical imaging of brain tumors by injecting the tumor tissue with magnetic bacteria – organisms that take in iron from the environment, which they use to grow a chain of magnetic particles that helps their bodies align with the earth’s magnetic field,” she says. “I’m currently characterizing individual magnetic bacteria, to understand exactly how their presence makes MRI imaging more effective.”

Kalisky’s research is based around an extraordinarily sensitive microscopy system known as SQUID (Superconducting QUantum Interference Device), which can characterize magnetic field strength of less than a hundred electrons. Kalisky plans to use SQUID technology to characterize the properties of individual nanomagnets.

“Whatever the nature of the material, there is a technical problem in measuring nano-sized samples: to accumulate a detectible signal using conventional techniques, we need to average the magnetic properties of millions of particles together. But the magnetic properties of nanomagnets are inherently sensitive to small variations in volume, shape and structure, which makes bulk characterization insufficient. I believe that scanning SQUID will make it possible to examine the behavior of an ensemble of particles, while at the same time, detecting each individual in it. This will eventually give scientists more control over applications of nanomagnets for bio-medical applications.”

Improved control of magnetism is at the heart of two of Kalisky’s most recent publications. “My colleagues and I examined a structure made of two different materials grown one atop the other,” she says, referring to research that appeared in the prestigious journal Nature Communications. “Although the materials were non-magnetic insulators, magnetism suddenly appeared in tiny ‘islands’ at the interface layer between them. We also found that physical contact with the tip of a SQUID probe makes it possible to dramatically change the magnetic properties of these small ferromagnetic islands – a study that was published in Nano Letters. This is particularly interesting because it demonstrates the possibility of manipulating magnetism – at particular points within a material – at will.”

Another recent study, published in Nature Physics, relates to this structure’s ability to superconduct. Superconductors – materials that conduct electricity with near-zero resistance – have fascinated Kalisky since her days as a BIU PhD student, when she worked under the supervision of Director of BIU’s National Laboratory for Magnetic Measurements and former University Rector, Prof. Yosef Yeshurun. She continued her research of superconductors at the Weizmann Institute before leaving for her postdoc at Stanford.

“Materials that exhibit both superconductivity and magnetism are unique and interesting because these are properties that are generally considered to be mutually exclusive,” Kalisky says. “Materials that act as superconductors normally expel magnetic fields, while strong magnetic fields acting on a material can disrupt its superconductivity.” Using scanning SQUID, Kalisky and her co-authors showed how the interface between the two “sandwiched” non-magnetic insulators exhibits both magnetic and superconducting properties. “This may have important implications for understanding superconductivity, and may have applications in quantum computation and future nanoelectronics devices.”

As she settles into her new laboratory in the Leslie and Susan Gonda (Goldschmied) Nanotechnology Triplex, Kalisky is looking forward to using various techniques for sensitive magnetic measurements to examine a wide range of materials, including complex oxides, superconductors, nanotube coils, as well as magnetic bacteria and protein-templated nanocrystals for medical applications. Whatever she studies however, she believes that her greatest contribution is in asking the right questions.

“The laws governing nature can be very complicated,” she says. “As a scientist, my job is to identify the experiments that will reveal them and simplify the picture.”
Prof. Gil Diesendruck
But while messages absorbed from the environment certainly affect how children define social groups, "nurture" is not the only factor in shaping attitudes. In fact, "nature" – specifically, the natural, nerve-based structures that support the representational capacities of the developing human brain – also plays a role, and from a very young age.

"In a study of Jewish first and third graders, we examined pupils' attitudes by telling them a story that featured a Jewish boy and an Arab boy, and then presenting them with a series of tasks in order to assess both their associations and their emotional response to the characters," Diesendruck says. "Not surprisingly, children's attitudes were very much affected by how the story was told."

In Diesendruck's study, one version of the story reinforced what cognitive scientists call "essentialist" beliefs – the idea that there are certain immutable qualities that are naturally associated with a particular group, in this case, Arabs. Other children heard the same story, but without this essentialist emphasis. "The group exposed to the more 'essentializing' version of the story displayed more negative attitudes about Arabs," Diesendruck says. "What's more, when asked to draw a picture of a Jew and an Arab, they drew them further apart. This indicates that essentialism – the idea that 'this is the way these people are' – acts as a kind of fertilizer, preparing the ground for the growth of negative attitudes, stereotypes and prejudice."

Diesendruck emphasizes that little is understood about the neural structures that support the processing of social categories, partially because, in Israel, ethical considerations forbid the use of functional MRI to track brain activity in young children. But, he says, the data he has gathered so far raises some fascinating possibilities.

"It may be that boys tend to pay attention to group membership, while girls tend to judge people based on more individual characteristics," he says, adding that this may be attributed to the evolution of early human societies in which males were chiefly responsible for protecting a camp from intruders.

Ultimately, Diesendruck's wide-ranging work is an illustration of how the complexity of social relationships is reflected in the human brain – the complex tool we use to understand them. "The stories we tell our children, and the language we choose, certainly has an impact on how they come to view the world," he says. "But from the point of view of cognitive science, there is much more to the story than that, because children have their own – perhaps instinctive – ways for interpreting what we tell them."
I was always interested in Israel's neighbors and as a young student in the US, I noticed that people weren't very well informed about the Middle East."
BIU's New Recruit Joshua Teitelbaum:

Lifting the Veil on Mideast Politics & Culture

An internationally renowned authority on Saudi Arabia and the Arab world, Prof. Joshua Teitelbaum is a valued consultant for US and Israeli governmental agencies, and a sought after speaker and commentator in the global media. He is also an esteemed new member of BIU’s Department of Middle Eastern Studies (in the Faculty of Jewish Studies) and a Senior Research Associate at the Begin-Sadat (BESA) Center for Strategic Studies on campus. One of ten brilliant scholars brought on board by the Faculty of Jewish Studies since 2011 as part of the University’s Faculty Recruitment Program, Teitelbaum uniquely focuses on the Persian Gulf states, in particular, how their political development has been shaped by their tribal origins. “It is fascinating to see the ways that these traditional societies find to confront the challenges of modernity,” says this leading historian on the modern Middle East, whose languages include Arabic, French and Hebrew, as well as his native English.

“I was always interested in Israel’s neighbors and as a young student in the US, I noticed that people weren’t very well informed about the Middle East,” recalls Teitelbaum, who was born in the San Francisco Bay area. He holds a BA in Near Eastern Studies from UCLA and an MA and PhD in Middle Eastern History from Tel Aviv University. “I immigrated to Israel in 1981 for the simple reason that I am a Zionist. I wanted to be part of the Jewish people’s major project of rebuilding our homeland, and I have been here ever since, except for visiting professorships at Stanford, Cornell and the University of Washington. I’m also currently a visiting fellow at Stanford’s Hoover Institution.”

He was among the first to conduct an in-depth study on religious movements in Saudi Arabia. In fact, following 9/11, his book, Holier than Thou: Saudi Arabia’s Islamic Opposition (2001) became an instant academic bestseller, rising high in the Amazon ranks, “because nothing else had been written about Islamic movements in Saudi Arabia — people in the West didn’t think there were any,” he says, noting that his books have been favorably reviewed in Saudi Arabia. “It doesn’t seem to bother them that I’m Israeli.”

The New York Times, Washington Post, Wall Street Journal, Reuters and many others have sought his expert analysis on the Middle East. “The uprising in the Arab world had little effect in Saudi Arabia because that country pre-empted by investing millions in social programs, housing and education,” relays Teitelbaum, whose most recent work is Saudi Arabia and the New Strategic Landscape (2010). The recipient of a prestigious research grant from the ISF (Israel Science Foundation) for his work on tribal influences in the Saudi military ("very important for understanding the challenge to the stability of the Saudi regime"), he has also published papers on the Iranian leadership’s attitudes toward Jews, the Holocaust, and Israel, particularly the denial of the Jewish people’s right to self determination.

A regularly featured speaker at the annual AIPAC policy conference, he has addressed most US university Middle East studies centers as well as leading organizations and institutions, including: the Council on Foreign Relations; the Department of State, Bureau of Intelligence and Research; the FBI; the CIA; the US Army War College; the Italian Ministry of Defense; Israel’s National Security Council; and the Israeli Foreign Ministry. For the BESA Center, he writes position papers, and frequently briefs journalists, diplomats and government officials on the Middle East, both in Israel as well as in the US and Canada.

Drawn to Bar-Ilan University “because of its academic excellence, particularly in my field,” he felt that since BIU has the youngest Middle Eastern Studies department in Israel, “there’s an opportunity for growth and here is where my contribution would be the greatest.” This year he teaches courses on the History of Palestinian Nationalism; Army, State and Politics in the Modern Middle East; Tribes and Society in the Persian Gulf; and Democracy, Dictatorship and Liberalization in the Middle East. "I love my BIU students and the personal contact I have with them. I particularly enjoy advising MA and PhD candidates and turning them into researchers,” relates Teitelbaum, who says BIU is "very welcoming and has a diverse campus."

Reflecting upon his academic achievements thus far, Prof. Joshua Teitelbaum says, “I think my research contributes to a greater understanding of the historical, political and social developments in the Arab world. Without understanding, one cannot hope to reach agreement or cooperation,” notes Bar-Ilan’s Middle Eastern expert, who is providing the West with an inside view of Israel’s neighbors in the Persian Gulf.
We must find a way to harmonize between civil and religious legal considerations in marriage, and create an accepted framework that protects every couple’s civil rights."
Marriage, Divorce and the Law(s) of the Land
Prof. Shahar Lifshitz Proposes a Religious-Civil Compromise

Israel prides itself on safeguarding freedom of religion for all faiths. But according to Prof. Shahar Lifshitz – an expert on family law who recently became Dean of the Law Faculty – true justice depends on radically changing the way Jewish marriage and divorce is regulated.

“The Rabbinate has exclusive jurisdiction over Jewish marriage and divorce, and it is well known that hundreds of thousands of people who do not meet the religious definition of any faith, or fall into a ‘religiously prohibited’ category for Jewish marriage, cannot marry in Israel at all," Lifshitz says. “Less well known is the fact that, sometimes, because they are focused on counter-balancing the Rabbinate’s control over matters of personal status, secular judges may unintentionally hand down rulings in which a couple’s civil rights are compromised.”

A Senior Research Fellow at the Israel Democracy Institute and a former member of a governmental committee on marital property law, Lifshitz serves as co-chair of the Forum for Cooperation between the Israeli Supreme Court and Israeli Legal Academia, an organization he founded together with BIU’s Deputy President Prof. Yaffa Zilbershats and former Israeli Supreme Court President Dorit Beinisch. Lifshitz believes that members of the Bar-Ilan Law Faculty have an important role to play in creating legal standards for ensuring fair treatment for couples who, for any reason, are not recognized as married under Orthodox Jewish law.

According to Lifshitz, the current policy creates a “lose–lose” situation.

“The religious monopoly on these matters has led the civil courts to develop the concept of ‘co-habitation’ as a secular substitute for marriage and divorce,” Lifshitz explains. “However, civil rulings have been known to enforce marriage-like commitments on couples when they separate, even if the couple never considered their relationship to be legally binding. Sometimes, this stems from an assumption that any unmarried couple living together must have been denied the right to marry by the religious authorities. In their rush to ‘correct’ what they see as the illiberal bias of the Rabbinic, secular courts may hand down judgments that are illiberal in the extreme.”

According to Lifshitz, the decision to end a relationship can also cause unexpected complications. “In a famous case, a judge conferred legal status on the relationship between a married woman and a man who was not her husband, based on the assumption that the woman’s lack of a religious divorce was entirely due to the malefacity of the Rabbinical courts," Lifshitz says. “But even granted that the problem of agunot – women ‘chained’ into a marriage by recalcitrant husbands – is real and significant, is it really the place of the secular courts to create a ‘liberal’ substitute for religious divorce? What about cases in which the wife refuses to accept a get? What about enforcing the distribution of assets while accounting for the ‘human capital’ brought into the marriage by each spouse? We must find a way to harmonize between civil and religious legal considerations in marriage, and create an accepted framework that protects every couple’s civil rights.”

According to Lifshitz, an interim approach to bridging the gap would be the creation of a Spousal Registry which would allow non-married couples to register their intention to commit to one another, thereby vesting them with all the civil – but not the religious – rights enjoyed by couples who choose to marry in an Orthodox ceremony.

“In the struggle between secular and religious law, we don’t want one side to win – we need a compromise framework that would support a larger goal: the adoption of a constitution based on broad agreement among varied sectors of the Israeli public,” Lifshitz asserts. “The idea of a Spousal Registry was very close to being accepted as law by the last Knesset. It is my hope that as we continue to clarify the rights and responsibilities of co-habiting couples – married as well as non-married – we will be better equipped to dispense real justice in the Jewish State.”
In the modern world, computers are indispensable for keeping track of the data too complicated to manage with brain-power alone. But there’s a hitch: the interconnectedness of today’s computer systems exposes sensitive data in ways never before possible. According to Dr. Osnat Keren, in the age of cyber-attacks and credit card fraud over the Internet, there is another “Achilles heel” that we overlook at our peril: the vulnerability of our hardware devices.

“In the modern world, enormous amounts of information travel along communication links – between telephones, between computers, or even between the tiny components within a single device that control memory storage and retrieval,” says Keren, a Tel Aviv University-trained scientist who, along with her research activities at the BIU Faculty of Engineering, lectures in Coding Theory and Advanced Logic Design. “This moving data constitutes a security risk, because attackers can maliciously inject errors in order to break the underlying code that keeps data safe. In my work I use mathematical methods to design codes that ensure data security by making sure that all maliciously injected errors are detected – before the damage is done.”

According to Keren, smart cards – a hardware-based encryption platform designed to promote data security and privacy – have actually increased our vulnerability. “Today, we all carry credit cards, or cards that contain our health and insurance information, and we use cellphones with SIM cards in which all our private information is stored,” she says. “These devices contain processors that, like any computer, can be hacked. One of the most effective ways to crack a security code is to introduce faults, then analyze the erroneous operation of the device that results. Much of my work involves creating structures of error detecting codes that limit this vulnerability.”

According to Keren – an industry-savvy academic who began her career at National-Semiconductor in 1998, and helped develop a voice-processing technology now embedded in all mobile phone products before she joined Bar-Ilan University in 2004 – hardware security is a rising concern. “The “linear code” that underlies the functionality of today’s hardware devices makes it relatively easy for hackers to introduce error patterns that go undetected,” she explains. “Because these codes leave a door open for tampering, our challenge is to create a mathematics-based coding standard that closes that door.”

In another area of her work, Keren is working on the design of mathematical models for combating cyber-threats maliciously built into the hardware itself. Keren says this type of threat is growing because the process of chip manufacture is increasingly being outsourced.

“Imagine an ‘inside job’ in which a criminal working on the design team introduces a malicious ‘Trojan Horse’ modification into a chip that controls the brakes of certain cars produced by a US auto manufacturer,” Keren says. “Since the system functions correctly when the Trojan-Horse is not activated, it is difficult to detect its presence, but once these cars are out on the road, the criminal’s associates could threaten to activate the threat and kill thousands of people. It’s a perfect and powerful form of blackmail.”

According to Keren, there is no way to completely prevent cyber-attacks of this kind. But with the help of careful code design, she says, it is possible to ensure that no maliciously-introduced fault goes unnoticed. “Cyber-criminals who want to reveal information encoded in hardware inject an error pattern, then leave it there to gather data over a relatively long period of time,” she says. “This is an advantage for those who want to identify the error and detect foul play.”

Keren and her colleagues at Tel Aviv University and Boston University are working together on a coding protocol that will reveal the presence of cyber-attackers. “We’re preparing for the worst case scenario – an attacker who can inject every possible error in a hardware-based system,” she says. “With a smart coding approach, we can guarantee that no attacker can initiate an attack without being noticed. That’s the mathematics behind the story – and the first step in catching a cyber-criminal.”

Osnat Keren: Mathematics Meets – and Beats – Cyber-Terror
In my work I use mathematical methods to design codes that ensure data security by making sure that all maliciously injected errors are detected – before the damage is done.
Experiencing a traumatic event can frequently have long-term psychological effects. But what part does human biology – specifically, the genetics of the brain – play in the unfolding of this drama? According to Dr. Evan Elliott, a native of San Jose, California who is a founding member of Bar-Ilan's Medical School in Safed, certain types of stress conditions can lead to molecular-level modifications in the brain that may hold the key to understanding long-term, post-traumatic changes in human behavior.

“My research focus is on something called epigenetic neuroscience – the study of how environmental factors and genetics come together to create certain patterns of behavior,” says Elliott, a graduate of the University of California (San Diego) who moved to Israel in 2001 and completed his MA, PhD and post-doctoral work at the Weizmann Institute. “It’s long been understood that chemical changes to DNA can lead to disease, but it was only about ten years ago that neuroscience researchers discovered that environmental stress can result in stable chemical modification of certain genes associated with the brain. This raised an entirely new and fascinating question: Is this molecular-level change the cause of post-traumatic behavior?”

To answer this question, Elliot made a critical adjustment to a well-established mammalian model for studying the link between behavior and genetics. “It is known that when a young laboratory animal is taken away from its mother early in life, this stress produces modifications in a certain gene known to be associated with depression and anxiety,” he explains. “Working with mice, we were the first to discover that environmental stress induces long-term changes in this gene in adult animals as well.”

According to Elliott, his experimental setup and results provide the strongest evidence yet found that chemical modification of genes may be the force that triggers behavioral change – and locks it in over the long term. “In our study, we were able to differentiate between populations, identifying those mice that, after stress, displayed altered patterns of behavior such as fear or reduced levels of social interaction,” he says. “Later, we proved that these behavioral changes occurred only in mice that had also undergone stable, stress-related chemical changes to their genetic code.”
In his post-doctoral research at the Weizmann Institute, Elliott studied the genetics of Alzheimer’s, focusing on a particular protein associated with the onset of this disease. In the future, he plans to continue examining the link between genetics and certain psychiatric states – particularly autism. “While little is known about the cause of autism, we do know that autism is strongly linked to both genetic and environmental factors,” Elliott says, adding that, since epigenetics concerns itself with the point where environment and genomics meet, it may provide a good approach to unraveling this mystery. “Using transgenic mouse models, we’ll attempt to link specific mutations associated with autism with behaviors — such as repetitive grooming behaviors that mirror the stereotypical, obsessive movements that are sometimes seen in autistic people. If we can establish the link between genetics and this type of autism-specific behavior, this will be a big step forward.”

Elliott is excited about his new position in the Medical School where, along with his research, he teaches graduate students, and, together with a physician from the Western Galilee hospital in Nahariya, created the “Brain and Mind” curriculum for the medical students. Professional considerations, however, are not the only thing that attracted him to the North. “My wife was born in the Galilee, and we are happy to move together with our four children to be closer to her family,” he says. “It’s also an exciting challenge to be part of establishing a new school. I’m looking forward to my first year of teaching and research, and am sure it’s going to be a very positive experience.”
Mind the Dig:

Unearthing Jewish Heritage

Pictures courtesy of Prof. Aren Maeir, the Tell es-Safi/Gath Archaeological Project
Dozens of students and volunteers from around the globe joined Bar-Ilan archaeologists this past summer for an unforgettable hands-on experience digging into the past at two important Biblical Period sites. Under the capable supervision of Prof. Aren Maeir, of the Martin (Szusz) Department of Land of Israel Studies and Archaeology, enthusiastic participants from the US, Canada, South Korea, the UK, Hungary, China, Spain and other countries chiseled away at the layers of civilization, helping to uncover rich finds and make BIU’s 2012 summer excavations at Tell es-Safi/Gath and Tel Burna a resounding success!

Among the discoveries: a fortification wall from the Late Bronze Age (ca. 1500-1200 BCE), when Canaanite Gath was a booming city, and pottery vessels imported from Cyprus and Greece; a large cultic building dating to the time of King Ahab and the prophet Elijah (mid-9th century BCE) in the lower city of Gath; and impressive evidence of the outer fortification wall of the 12th century Crusader castle Blanche Garde. At Tel Burna, Late Bronze Age finds comprise a row of large jars, a beaded necklace with a scarab, a cylinder seal, and a vessel with three joined cups, likely of cultic orientation.

The large archaeological team included a group of college students eager to “touch” the history and culture of the ancient Land of Israel – by unearthing Biblical artifacts, and taking part in archaeology lectures and field trips. This opportunity was made possible thanks to a generous, model fellowship initiative created by an anonymous foundation, which fully covered the students’ costs at the excavations. The fellows were effusive in their praise:

- "These unforgettable four weeks were an experience of a lifetime. The feeling of holding a vessel from the Iron Age, which has laid untouched under the surface for thousands years, was indescribable... I gained outstanding fieldwork experience, and had a chance to work with a great team."

- "It was an immense privilege to come to dig. Not only did I get practical field experience, but also had the unique opportunity to hear specialists lecture with passion about how archaeology can impact our understanding of past ways of life."

- "The experience on and off the site was incredible and has re-affirmed my desire to work in Israel at Iron Age II sites. These digs (and their phenomenal staff) have even motivated me to want to study here in Israel."

- "I was lucky enough to be part of some exciting discoveries. We successfully uncovered a massive city wall ... As a chemist, I believe this amazing collaboration between the exact sciences and archaeology will spawn a new era in archaeology."

Perhaps the most telling endorsement of the BIU hands-on Biblical archaeology experience is the declaration of one happy digger: "I’m already counting down the days until next summer and hope I can participate as a volunteer once more!"

Journalists and Bloggers "Dig Israel" with BIU StandWithUs Fellows

A select group of journalists and travel bloggers from Singapore, Slovakia, Hungary, the US and Canada recently had a chance to tour and personally experience Israel’s archaeological richness during a five-day trip organized by BIU’s 25 StandWithUs (SWU) student fellows. The group visited prominent archaeological sites, including Tell-es-Safi, where they were briefed by Prof. Aren Maeir and Dr. Amit Dagan from Bar-Ilan’s Institute of Archaeology, and then joined the excavations, to unearth two complete bowls dating back to antiquity! The tour, which showcased Israel "beyond the conflict," and highlighted exciting travel ops, was organized by the SWU Fellows together with the School of Communication and Institute of Archaeology at BIU.
What do a geneticist, an architect and an artist have in common? At the Bar-Ilan Institute of Nanotechnology and Advanced Materials (BINA), they’re all part of one research team that takes multi-disciplinary collaboration to a new level: the laboratory of 2012 BINA recruit Dr. Ido Bachelet.

“It’s important for me to work with people of diverse backgrounds because I believe that problem solving is multidisciplinary,” says Bachelet, whose own training runs the gamut from a PhD in pharmacology and experimental therapeutics, to two post-doctoral research positions in Boston: the first, focusing on engineering and social insect behavior at MIT, and the second, devoted to immunomics and DNA nanotechnology at Harvard.

Bachelet’s focus is on creating technologies that communicate or draw inspiration from biological assemblies. “We’ve created a DNA nano-robot — a 3D machine that can interface with living cells, collect data, and carry out programmed tasks within the body,” Bachelet says, adding that this approach may help overcome a major problem in drug design – the fact that doctors have almost no control where or when a drug will be active once it is administered. Dr. Bachelet’s system opens up new possibilities for bio-embedded computers that can work as a coordinated team, responding to cellular signals, making a drug available or unavailable at will, and controlling drug interactions.

While at MIT, Bachelet studied swarm behavior in insect colonies, examining how termites work together to build complex nests. Today, in collaboration with artists and architects, he applies natural social dynamics to the creation of new paradigms for building devices, buildings and even cities for humans.

A common theme in all of Bachelet’s projects at BIU is that science should be a personal calling.

“I write bio-inspired music for piano solo, and am also exploring the boundary between music and science,” he says. “Biology is more of a jumping-off point than a path, and that’s the spirit I want in my lab. As brilliant as my students are, they should always remember that science should be fun.”
The Hebrew Bible is a revolutionary document. But to understand the nature of this revolution, one needs to examine how the Biblical text is both similar to and different from the cultural norms of the ancient environment in which it first appeared. This is the research focus of Dr. Nili Samet, a BIU-trained scholar who recently joined the faculty after completing post-doctoral research at the University of Pennsylvania.

"The Bible is a polemic that caused people to think about religion in a new way," says Samet, a 2011 recipient of the Alon Fellowship, as well as many other awards. "The Bible introduced monotheism and presented new ways to think about ethics, the social order, geography, and the nature of life and death. By comparing the Biblical narrative to cuneiform texts inscribed in ancient clay tablets, it’s possible to see how the Bible is part of the ancient world’s cultural legacy and challenges it at the very same time."

In a recent study, Samet examined how Mesopotamian texts – as well as the Bible – defined mankind’s spiritual boundaries. "The texts I examined stated that ‘even the highest one cannot reach heaven, and the widest cannot reach the end of the Earth,’” she says. "The Bible, on the other hand, famously emphasizes that God’s teachings are within reach for everyone: ‘this commandment which I command thee this day, it is not too hard for thee, neither is it far off it is not in heaven neither is it beyond the sea.’ This is just one example of how the Bible marked a point of significant cultural transition."

According to Samet, who spent the last two years at Penn’s Museum of Archaeology and Anthropology studying the world’s largest collection of Sumerian tablets, the similarities between the worldviews of the Bible and the ancient Near East can be as fascinating as their differences.

"Mesopotamian texts and the Bible frequently employ similar imagery to describe everything from war and destruction to divine justice,” she says. "As more of these tablets are discovered and deciphered, they can deepen our appreciation of the Bible’s place within the ancient world.”
Ori Aronson: Procedures for Pluralism – In the Courts

Religious, secular, of different backgrounds and different views, trained in Israel and abroad – the diversity of the Law Faculty was one of the things that attracted Dr. Ori Aronson to Bar-Ilan after completing his doctorate at Harvard. But this expert in civil procedure and constitutional law does more than celebrate diversity – he theorizes it, helping to formulate the frameworks that promote judicial pluralism.

“I study the institutional design and function of the courts,” says Aronson, a 2011 Alon Fellow who clerked for former Israeli Chief Justice Aharon Barak, as well as for Judge Jon Newman of the U.S. Court of Appeals. “This is something that’s fluid in every society, but in Israel, the lack of an agreed-upon constitution makes the role of judiciary particularly contested.”

According to Aronson, the courts are a place for discussing values, which makes even the smallest changes in judicial procedure significant. “In Israel, for example, judicial review – in which a court examines and determines the constitutionality of a statute – mostly takes place in the Supreme Court,” Aronson says. “But what if a lower court judge was empowered to say ‘this law cannot stand’? This would foster a more deliberative, participatory, and eventually pluralist character for Israel’s constitutional discourse.”

Aronson also examines specialized court systems. “When judges focus exclusively on a particular category, such as military, labor, or family law, they begin to speak a different language – and rule differently – than judges in other fields,” he says. “This is not necessarily bad, because it allows the legal system, which is usually concerned with uniformity and stability, to accommodate multiple and even conflicting worldviews. In heterogeneous societies like Israel this can be a political virtue.”

Aronson first became interested in law and public policy while serving as an officer in the IDF intelligence corps. “Later,” he recalls, “I found that studying what judges do, as well as the institutional conditions within which they function, is an important step toward creating a judicial system that more broadly reflects our democratic values. And that’s one step closer to justice for all.”

“ In Israel, the lack of an agreed-upon constitution makes the role of judiciary particularly contested. ”
More than 30% of all proteins in the cell exploit one or more metals to perform their normal functions. But in the human body, an excess of metal is associated with neurodegenerative diseases like Alzheimer’s and Parkinson’s. Dr. Sharon Ruthstein, a new faculty member in the Department of Chemistry, is looking at some of the most significant processes related to metal ion transport in health and disease, using a biophysical tool called pulsed Electron Paramagnetic Resonance Spectroscopy, or EPR.

“Copper is important for enzyme reactions, but no one knows exactly how it gets inside the cell,” Ruthstein says. “We’re using EPR – a system that measures the ‘spin’ properties of unpaired electrons – to gather structural evidence about the transport and distribution mechanisms of copper ions.”

Dr. Ruthstein was an unlikely candidate for a career related to the biological sciences. In her doctoral work, she studied the structural formation of silicon – a material best known for the silicon chips that are at the basis of modern electronics. It was only later that she began to apply this same technique to biological materials.

“Advances over the past decade have made it possible to measure a material’s properties at nanoscale differences, transforming EPR into a useful tool for the life sciences,” Ruthstein says, adding that the prestigious EMBO Fellowship she received to support her post-doc at the University of Pittsburgh required her to learn biology from the bottom up.

“I came from a background in physical chemistry and had to acquire a whole new scientific vocabulary. That’s what made the work so interesting, and ultimately, so worthwhile.”

In her new lab – one of only three EPR facilities in Israel – Ruthstein hopes to get a clearer picture of the metal-related processes that can lead to disease. “To do their work, metal molecules bind to proteins, which in turn, pass them on toward the next step,” she says. “My goal is to shed light on the paths these molecules take and, eventually, identify targets for drugs that might control their harmful activity.”

Sharon Ruthstein: Metals, Magnetism and the Structure of Human Health
MA candidate Ariel Eisenbach is examining a phenomenon that has long eluded condensed matter physicists: the slow, internal dynamics of electron glass. He seeks to elucidate why electrons in these highly disordered systems behave so differently – and at a far more sluggish pace – than their counterparts in crystals.

When glass gets a sudden energy burst and is "excited" out of equilibrium, it takes days or even longer for it to "relax." These slow processes are hard to track and experimental evidence is scarce. Eisenbach’s research aims to fill the void by shedding light on the very basic non-equilibrium (excited) processes of electrons in matter. Currently measuring electron behavior in various temperatures, the gifted student, who has been part of BIU’s prestigious Program for Honors Scholars since commencing his BSc, notes that "our team was the first to show this phenomenon at room temperature" and, this, he says, bodes well for inventors, who may "find interesting applications in nanoscale memory cells and information storage."
BIU Chesed Fund Empowers Student to Pursue Social Work Career

The first in her impoverished Ultra-Orthodox family to complete university – let alone high school – Rachel [not her real name] is charting a new path. She has just completed her social work training and will soon receive certification. She hopes to work with children at risk. Highly motivated and ambitious, and with financial support from BIU’s Chesed Fund, she has taken steps to extricate herself from the cycle of poverty, and acquire a marketable profession.

From the age of 17, her family began talking marriage but she engaged in study – to pass matriculation exams and pursue higher education. With no tradition of academic learning at home, she had to invest much time, effort and expense. “My parents couldn’t help financially, but today they are proud of me,” notes the 26-year-old Jerusalemithe. Her dream to study social work was initially put on hold as she failed twice to pass the tough entrance exams but she did gain entry into Bar-Ilan’s special 3-year social sciences track at the Haredi College of Jerusalem, before enrolling at the Louis & Gabi Weisfeld School of Social Work on campus.

“The BIU Chesed Fund really saved me,” asserts a grateful Rachel, who has sought to support herself through ironing and housework. “I fell between the cracks and wasn’t eligible for other scholarships since I already had a BA, am no longer Ultra-Orthodox and didn’t do IDF or National Service. The committee read my story and decided to help me even if I didn’t fit every single criterion. The grant covered most of my tuition and gave me peace of mind,” recalls Rachel, who today defines herself as “religious.”

“BIU gave me the tools to pursue a profession and I hope to return to campus for my MA after acquiring field experience,” she relays, noting that she enjoyed the high level of social work training, the Jewish atmosphere and the Jewish heritage courses. A model for her seven siblings and friends, she says “they saw that it’s possible to pursue higher learning.”

Rachel, who feels qualified to work with the Ultra-Orthodox because she is attuned to the nuances of their lifestyle, says she “believes in the power of intervention – that every person can choose to fulfill himself and transform, and that treatment can help effect positive change in the family, and in our lives.”

The Hesder Yeshiva grad who was an IDF paratrooper during the 2006 Lebanon War [taking part in the fierce Bint Jbeil battle where he lost his squad commander] says “being an ‘Honors Scholar’ enabled me to excel, to begin intense research in my second year of BSc studies.” He enjoys the broadening “Honor Scholars” meetings on topics such as artificial intelligence, and forging relationships with fellow recipients. “The scholarship helps me concentrate on my studies without having to worry about finding a job,” relates the father of two, who married during his first semester. “Bar-Ilan is a warm university, and the academic level is high. I’m personally acquainted with all the professors in my field, including the BIU President and Rector who take interest in my work.” He opines that “Bar-Ilan has the best condensed matter researchers in Israel, who rank among the world’s most outstanding.” Two, in fact, are his “graduate supervisors, who push me forward to the scientific frontier, and arrange for me to meet leading scientists.”

Prof. Aviad Frydman extols his student’s capabilities: “Ariel possesses a rare combination of technical experimental abilities and experimental vision with strong theoretical capabilities and understanding. This drew him to integrate two parts into his research and thesis: one experimental (under my supervision) and one theoretical (under Prof. Richard Berkovits’ supervision). His work has the potential of making a significant impact on the understanding of some of the basic concepts in condensed matter physics.”

Eisenbach says he enjoys the diversity of the BIU student body. “It’s the first time I have been seriously exposed to the world at large and met people very different from me,” he relays, noting that BIU’s Religious-Secular Dialogue Program “helped me redefine my concept of Am Yisrael.” He also relates to “BIU’s unique encounter between academia and Judaism,” pointing to his Jewish heritage courses [e.g., Halacha and Medicine], the shiurim he attends at the Ludwig and Erica Jesselson Institute for Advanced Torah Studies, and BIU’s special atmosphere which puts emphasis on Jewish holidays and traditions “not like at some campuses, where it’s just performances and pubs.”

The son of a physicist, Ariel Eisenbach hopes to continue toward his PhD and make a contribution in academia or hi-tech. “Israel is in need of innovative ideas and start-ups,” stresses the budding physicist. Says Frydman, “Ariel will be an excellent scientist who will bring honor to our institution.”
Orit Wolf: Teaching Business Improvisation through the Power of Music

Orit Wolf was on stage, alone at the piano, in front of an audience of hundreds. Only 12-years-old, her performance was being broadcast over the Voice of Israel’s classical music radio station to thousands more. And then she froze. “I had a complete blackout,” she says. “I couldn’t remember what I was playing, I couldn’t remember the notes.” There was only one thing to do. “I started to improvise,” confides the 38-year-old concert pianist from Jaffa who is a graduate of BIU’s prestigious Doctoral Fellowship of Excellence program.

That experience of utilizing her mind to transform a potentially disastrous situation into a creative triumph became a professional pivot point that propelled Wolf from the top of the music world to a highly successful career as a business consultant. The connection? “In both you have to come up with out-of-the-box solutions. On that stage, I learned the value of ‘online’ real-time composing, of regarding mistakes as opportunities rather than errors. I take the importance of improvisation in the music world and apply it to a business environment, building creative thinking, teamwork, leadership and communication skills, all through the power of music.”

That switch has led to a whirlwind schedule encompassing some 100 consulting gigs and lectures a year (she has over 180 clients including some of the biggest in the business such as Orange, Bank Discount, FedEx, ECI, Teva and Strauss), in addition to continuing performances as a solo artist and with orchestras in Israel and around the world. She also hosts her own series of popular public lectures with leading musicians and, to top it off, she’s a mother of two small children under the age of four.

Wolf’s drive derives in part from a childhood where “I never got anything for free. I worked hard for everything. That was my education,” she says. Indeed, she was six years old when, with no music experience, she announced to her parents that she wanted to learn the piano. Her parents agreed, but they wouldn’t buy her the instrument – she had to practice at a friend’s house — until she showed she was serious. She soon did.

At 16, she garnered a full scholarship to study at the prestigious Tanglewood Music Center in the U.S. When Boston University courted her to enroll in its music department, not only did Wolf obtain another full scholarship, but she asked for — and received — money to cover her living expenses.

She continued her education at the Royal Academy of Music in London and Bar-Ilan University, where she earned her PhD in 2007 focusing her research on the interplay between music and improvisation. As an outstanding student, Wolf received a Doctoral Fellowship of Excellence.

While the music world may sound “concertos” away from business, they are both “ruthless,” Wolf says. Speaking about the many music competitions she has participated in over the years, she adds, “I learned to lose and win, to analyze the reasons for both, and to try to repeat the latter and avoid the former.”

Part of the way she practices her music is to play “absurdly,” she says. “I’ll take a very delicate piece and instead play it fast and loud. I teach managers how to solve problems in a creative way too, one that will result in new insights.”

She gives another example of a company where employees were spending too much time on the Internet for personal use. “The managers could have tried to threaten the employees,” she says, “or put cameras on their computers.” Instead, Wolf came up with one of those absurd solutions. “We told the employees that they had to surf the web for personal use every day from 2:00-3:00 PM. If they were caught working, the whole day would be counted as vacation. It worked because most employees have inner automatic moral values, so efficiency was improved significantly.

Which does she love the most – performing music or lecturing executives? “That’s the million dollar question, isn’t it?” she smiles. “I have two careers and two passions. I can’t choose. For sure, my soul cannot live without music. On the other hand, I didn’t want the life of a poor suffering artist!” The result is truly the best of both worlds – for both her clients and her many musical fans.
Award-Winning PhD
Liron Jacobson: Stimulating the Brain to Achieve

Does weak electrical brain stimulation improve cognitive performance? Very possibly yes! That’s what BIU’s Liron Jacobson has shown in cutting-edge doctoral research, which is internationally acclaimed and published in five papers in top journals. Conducting studies under the supervision of Prof. Michal Lavidor at the Leslie and Susan Gonda (Goldschmied) Multidisciplinary Brain Research Center, Jacobson found that immediately after applying transcranial direct current stimulation (tDCS) for 15 minutes to the region in the brain’s right hemisphere which regulates impulsive behavior, healthy subjects performed better on cognitive tests. In a follow-up study, she used an EEG (electroencephalogram) to measure brain activity following electrical stimulation and discovered that there was a marked decrease in impulsivity along with improved brain functioning. Offering great promise, Jacobson’s PhD thesis, “Inhibition and Attention Processes in Healthy People and ADHD Using Brain Stimulation,” serves as a springboard for further research and may ultimately lead to an effective treatment for such widespread conditions as Attention-Deficit Hyperactivity Disorder (ADHD).

In recognition of the theoretical novelty of her work, Jacobson was awarded the 2012 BIU President’s Prize for Outstanding Brain Research. With a passion for research and exceptional academic achievements — she completed her PhD in less than four years while earning top grades — Jacobson has helped develop lab expertise in brain stimulation. She and five other recipients were chosen by a committee headed by world-renowned Cognitive Neuroscientist Prof. Moshe Bar, the Gonda Center Director.

"Brain science is a very fascinating field. There is so much to explore," Jacobson enthuses, noting that she was attracted to BIU "because of its multidisciplinary brain research, which offers an interface of biology, psychology, physics, linguistics and computing, and diverse research options. The Gonda Center, she says, "is very progressive, a leader in Israel." She was also intrigued by Prof. Lavidor’s renowned brain stimulation research. "I wanted to explore the potential of tDCS, how it can improve and eventually contribute to treating ADHD by providing a safer alternative to current drugs. There is clearly a market for this," she stresses.

“The Gonda Center pursues study and research on a very high level and also has a very warm, welcoming atmosphere; students help each other and are very supportive,” relates Jacobson, who holds a BSc (Cum Laude) from BIU. "The Center’s annual Ein Gedi Conference is an opportunity for doctoral candidates to make presentations and prepare for academia; and the Center’s enriching weekly colloquium features guest neuroscientists from Israel and abroad.”

Jacobson’s attention is now focused on choosing her future path: whether to continue in academia and conduct a postdoc overseas or to land a job in R&D. Wherever she goes, the award-winning Liron Jacobson is bound to generate a powerful impact.
For years it went unacknowledged. When it finally was identified as something real, it was mostly ignored. But, following the Vietnam War and, even more so, after the two longest wars in the history of the United States in Iraq and Afghanistan, the U.S. military conceded it had a problem...a big one. That’s when it turned to experts including Bar-Ilan University graduate Prof. Edna Foa, the world’s leading expert on treating Post Traumatic Stress Disorder (PTSD).

PTSD is a particularly debilitating disorder of the mind that combines symptoms of depression, anxiety, anger and isolation. It may be set off by a litany of horrors – rape, childhood sexual abuse, natural disasters and increasingly, as it is now known, by war. According to studies, it is estimated that between 300,000 to 400,000 soldiers who have returned from Iraq and Afghanistan suffer from PTSD.

Foa developed a therapeutic technique called “Prolonged Exposure,” considered by many professionals to be the most evidence-based treatment for PTSD. Prolonged Exposure can be distressing in the beginning, but it works. Patients are asked to describe their traumatic memories repeatedly, in present tense with their eyes closed, essentially revisiting the traumatic memory. They are also asked to gradually approach safe situations that they often avoid because those environments remind them of the initial trauma.

“The treatment,” Foa says, “helps patients correct misconceptions about what is dangerous.” By describing the traumatic experience, they can ultimately see it “as something that happened in the past and that is no longer making everyday events feel dangerous.” The treatment works fast – usually within 12 sessions.

Foa, 74, was born in Haifa. She started her career studying post-rape trauma some thirty years ago after receiving...
her BA in Psychology and Literature from Bar-Ilan in 1962. She chose Bar-Ilan in part because the University’s psychology department stressed both experimental and clinical practice, a combination which was unusual in Israel at the time. Foa moved to the U.S. when her then husband landed an academic position there. Foa received a PhD at the University of Missouri in 1970. She is now Professor of Clinical Psychology at the Department of Psychiatry at the University of Pennsylvania in Philadelphia, and the director of the Center for the Treatment and Study of Anxiety, which she founded.

Despite her many years in the U.S., Foa has remained committed and connected to Israel. “There was never a year that I didn’t visit,” she says. And while she tried to devote vacations in her homeland to family, “I always wound up giving several seminars,” including at Bar-Ilan University.

It was a longer sabbatical visit that began in late 2000 that increased her commitment to working in Israel. Five days after Foa’s arrival, the second intifada broke out and Foa found herself in intense demand to train local professionals to deal with the rapidly multiplying cases of PTSD among both soldiers and civilians. Since then, Foa has purchased an apartment in Tel Aviv and now visits for two months out of every year.

Still, it is with the U.S. military where the challenge, or perhaps better put, the opportunity to heal, is the greatest. The U.S. Department of Veteran Affairs has put her protocol into wide use. About 2,000 therapists have been trained since 2008.

Beyond her in-person training and clinical work with PTSD (she also deals with Obsessive Compulsive Disorder), Foa is a prolific researcher, according to one count, her writings have been cited an astounding 13,000 times. She received an award for Distinguished Scientific Contributions to Clinical Psychology from the American Psychological Association; a Lifetime Achievement Award from the International Society for Traumatic Stress Studies; and is the only Israeli on Time Magazine’s 2010 list of the “100 Most Influential People in the World.”

Despite her many achievements, she remains modest. “I didn’t set out to have a glorious career,” she says. “What’s important is that I can make a contribution to the field. If I had the choice to start all over again, I’d do the same thing.”

Hundreds of thousands of PTSD patients are grateful that Foa made that choice in the first place, one that started over three decades ago at Bar-Ilan University.
Bar-Ilan University hosts a multitude of conferences and events. On these pages: a sampling from the past year.

April 2012

- Economy, Society, and Privatization in Local Government in Israel [Department of Political Science, Institute for Local Government]
- The 19th Torah and Science Conference [Faculty of Engineering; Jerusalem College of Technology; Yeshiva University]
- Alan M. Turing Centennial Conference [Department of Computer Science]
- Erwin and Martha Samson CIC Public Diplomacy Workshop [School of Communication]
- One Hundred Years since the “Tritel” pogrom in Fez, Morocco [The Aharon and Rachel Dahan Center for Culture, Society and Education in the Sephardic Heritage]
- Symposium in Memory of the Ladino Speaking Jews of the Holocaust [Naime and Yehoshua Salti Center for Ladino Studies]

May 2012

- Conference in Biblical Historiography [Zalman Shamir Bible Department]
- International Conference: Tzuris and Other Literary Pleasures [Shaindy Rudoff Graduate Program in Creative Writing]
- The 2012 Cancer Route: From the Bench to the Bedside. Fourth Annual Israeli Cancer Research Meeting [Mina and Everard Goodman Faculty of Life Sciences]
- Land and Water Pollution [Faculty of Law; Environmental Justice Clinic; Mediation Clinic]
- Lebanese Jews: Identity and Heritage [The Aharon and Rachel Dahan Center for Culture, Society and Education in the Sephardic Heritage; Ministry of Education; Ministry of Senior Citizens; Association for Lebanese Jews in Israel (ILAI)]
- Halakhic Conference in memory of Rabbi Rackman: Prenuptial Agreements [Faculty of Law; The Ruth and Emanuel Rackman Center for the Advancement the Status of Women]
- Israel Mathematical Union (IMU) Conference [Department of Mathematics]
- Wise, Wicked, Simple, or Does Not Know How to Ask? Abusive Sexual Behavior among Children and Youth with Disabilities [Louis and Gabi Weisfeld School of Social Work]

June 2012

- Recent Advances in the Identification and Early Diagnosis of Autism [Louis and Gabi Weisfeld School of Social Work; The Mifne Center]
- Global Trade and International Financial Markets [Department of Economics]
- Religion and Identity in Europe and Beyond: Between Hybrity and Ethnicity [BIU Chair for Society and Judaism; Duke University; University of Lausanne, Switzerland]
- Annual Conference of the Department of Talmud: Halakha, Law, and Talmudic Literature [Naftal-Yaffe Department of Talmud]
- Lithuanian Kabbalah and its Branches [Shlomo Moussaieff Center for Kabbalah Research]
- The Ninth Annual Conference of the Israeli Music World: Who Am I? An Israeli Song [Department of Music; IDF Radio]

July 2012

- LinkSCEEM Conference: Linking Scientific Computing in Europe and the Eastern Mediterranean [Department of Chemistry]
- Values and Challenges of the Mathematical, Scientific and Technological Education in Pre-School [Pinkhos Churgin School of Education; Da-Gan Center; Ministry of Education]
- Research Conference: The Thought of Rav Joseph B. Soloveitchik: New Perspectives [Department of Philosophy; The Natali and Isidor Friedman Chair; Yeshiva University, Bernard Revel Graduate School of Jewish Studies]

September 2012

- International Conference: Jewish Communities in Latin America [The Aharon and Rachel Dahan Center for Culture, Society and Education in the Sephardic Heritage; University of São Paulo; The Ministry of Religious Services; Jewish National Fund (JNF-KKL)]

October 2012

- Ninth International Conference in Memory of Dr. Joseph Carlebach: Ways of Joseph Carlebach - General Education, Jewish Living, and Devotion [Israel and Golda Koschitzky Department of Jewish History]
- International Conference: International Thoughts on Mind and Brain [Leslie and Susan Gonda (Goldschmied) Multidisciplinary Brain Research Center]
- "Broken Mirrors": Human Rights Organizations, the Media and Israel [School of Communication]
Famed US and Israeli Yiddish-language actors Mike Burstyn and Shmuel Atzmon, together with Bar-Ilan University’s Rena Costa Center for Yiddish Studies, are joining forces in an effort to preserve Yiddish language and culture. “Bar-Ilan University, which recently opened a medical school to care for the body of our people, is one of the few academic institutions in the world that doesn’t forget Yiddish culture to care for the soul of our people,” said Prof. Hillel Weiss, Director of the Rena Costa Yiddish Center. Pictured (l-r): Dr. Ber Kotlerman, Academic Director of the Center, Chani Levene-Nachshon, the Center’s Manager of Public Relations, Daphne Netanyahu, a friend of the Center, BIU President Prof. Moshe Kaveh, Mike and Cyona Burstyn, Prof. Hillel Weiss and Shmuel Atzmon.

AWARDS AND APPOINTMENTS

- **Prof. Eli Barkai**, of the Physics Department, won the prestigious Michael Bruno Award.
- **Dr. Elisheva Baumgarten**, of the Israel and Golda Koschitzky Department of Jewish History and the Program in Gender Studies, was awarded the first Jordan Schnitzer Book Award for her book * Mothers and Children: Jewish Family in Medieval Europe* (Princeton University Press, 2004.)
- **Prof. Yaron Harel**, Chairman of the Israel and Golda Koschitzky Department of Jewish History, has been appointed a member of the Advisory Committee of the Turkish international journal *Dil ve Tarih-Co rafya Fakultesi Dergisi* (Journal of the Faculty for Language and History/Geography), published by Ankara University.
- **Dr. Chava Korzakova**, of the Department of Classical Studies, won the Yuri Stern Poetry Prize.
- **Prof. Yehuda Lindell**, of the Department of Computer Science, won the EU’s Young Researchers Award.
- **Prof. Yedidia Stern**, of the Faculty of Law, won the Zeltner Prize Promoting Research in Law and Rhetoric.

- The 25th Annual Teachers of Arabic and Islam in Israel Conference [Department of Arabic]
- The Biblical Crops Society of Israel Conference [Mina and Everard Goodman Faculty of Life Sciences]
- The Annual Sociology and Anthropology Department Conference [Department of Sociology and Anthropology]
- Around the Point: Languages, Literatures, and Cultures of the Jews [Simone Weil Chair, Department of Comparative Literature, Naime and Yehoshua Salti Center for Ladino Studies, Rena Costa Center for Yiddish Studies, Romanian Cultural Institute, The Polish Institute]
- Egypt: In the Era of Mohamed Morsi and “The Muslim Brotherhood” [Department of Middle Eastern Studies]
- New Studies on Jerusalem [Martin (Szusz) Department of Land of Israel Studies and Archaeology, Ingeborg Rennert Center for Jerusalem Studies]

**November 2012**

- Workshop on Energy Efficient Electronics and Applications [Faculty of Engineering]
- Tribe, Kindness, and Compassion: A Jewish Perspective on Prisoner Rehabilitation [Department of Criminology]
- America’s Foreign Policy after the Elections [Begin-Sadat (BESA) Center for Strategic Studies]
- Asperger’s Syndrome, a Dialogue between Research and Practice [Department of Psychology]
- Attention and Concentration in Early Childhood as a Basis for Identifying Learning Abilities, Difficulties, and Early Intervention [School of Education, Edward I. and Fannie Baker Center for the Study of Development Disorders in Infants and Young Children]

**December 2012**

US Faculty Fellowship Summer Institute in Israel

For the second consecutive summer, the delegation of academic fellows visits Bar-Ilan and is briefed on exciting research developments on campus.

1. Prof. Kevin Fitzsimmons of the University of Arizona, Tucson, meets with Dr. Lior Appelbaum in his Cellular and Development Biology Lab in the Bar-Ilan Institute of Nanotechnology and Advanced Materials (BINA), and gets a close-up of his research, which uses zebrafish to probe brain activity during sleep.

2. New York University Physics Prof. Daniel Stein (center) is hosted by BIU Prof. Yossi Yeshurun, Head of the Institute of Superconductivity, and Prof. Richard Berkovits, Chair of the Department of Physics. Over the years, Profs. Stein and Yeshurun have conducted joint research.

3. Delegation tours campus with Ruth Cohen (far right), Head of the BIU VIP Visits & Events Unit. Pictured at far left is Rene Reinhard of JNF, one of the host organizations.

Delegation from University of Potsdam, Germany

A delegation from the University of Potsdam meets with key BIU officials to discuss cooperative academic and research ventures in brain studies, social sciences, and Jewish studies.

4. Prof. Oliver Gunther (second from left), President of the University of Potsdam, and Prof. Ria De Bleser (third from left), Vice President for International Affairs and Strategic Development of the University of Potsdam, confer with the BIU Rector Prof. Haim Taitelbaum, Vice Rector Prof. Miri Faust, and Vice President for Research Prof. Benjamin Ehrenberg.

5. Bar-Ilan and Potsdam join hands: The BIU Rector, the Postdam U President, and BIU VP for Research, after signing a memorandum of understanding for cooperation.
University of Antwerp

A delegation from the University of Antwerp visits on campus and signs a memorandum of understanding for cooperative research in Jewish Studies.

1. Judith Haimoff, BIU Vice President for External Relations, and the Rector, Prof. Taitelbaum (second from right), greet the distinguished delegation from Antwerp: History Prof. Herman Van Goethem; Prof. Johan Meeusen, Vice Rector; and German Literature Prof. Vivian Liska, Director of the Institute of Jewish Studies.

2. Prof. Taitelbaum explains BIU’s logo to the Belgian visitors.

Makerere University Task Force on Campus

The delegation from Uganda visits the BIU campus and discusses cooperative projects in medical research and nanotechnology, and invites Bar-Ilan officials to visit Makerere, a prominent African university.

3. Prof. Benjamin Ehrenberg, VP for Research, welcomes Prof. Francis G. Omaswa, Head of the Makerere Task Force.

“Beit Shalom” Choir from Japan

During their visit to Israel, the Beit Shalom choir gives a performance of Jewish music, attends a seminar on theology and Judaism, and awards more than 30 research grants to Jewish Studies scholars at BIU.

4. The Beit Shalom Concert live at BIU.

5. Composer and conductor Takeo Sato is presented with a facsimile of the original Prayer for the State of Israel, which he holds together with Prof. Shmaryahu Hoz, Special Advisor to the President and liaison with Beit Shalom.
Delegation from Montreal

The Canadian business and academic delegation tours campus and signs an agreement for cooperation in brain research and other areas

1. Dr. Rose Goldstein, McGill Vice-Principal (Research & International Relations), Montreal Mayor Gerald Tremblay, BIU President Prof. Moshe Kaveh, and VP for Research Prof. Benjamin Ehrenberg sign a memorandum of understanding for cooperative brain research with McGill and other universities in Montreal

2. H.E. Paul Hunt, Ambassador of Canada, Montreal Mayor Gerald Tremblay, Dr. Rose Goldstein, Prof. Moshe Kaveh, Prof. Benjamin Ehrenberg, and the Israeli Consul in Montreal, Joel Lion

3. The group prepares to get an inside view of BIU’s striking Leslie and Susan Gonda (Goldschmied) Nanotechnology Triplex. Pictured (second from left) is Bar-Ilan’s Prof. Gal Yadid, who is collaborating on a brain research project with his McGill colleague, Dr. Moshe Szyf

Delegation from the University of South Carolina

5-6. The delegation hears presentations from leading BIU researchers, including Prof. Zeev Zalevsky, who heads the Electro-Optics Study Program and directs BINA’s Nanophotonics Center
Eighth Ambassadors’ Forum

BIU’s eighth Ambassadors’ Forum convened more than 50 ambassadors and senior diplomats for a timely briefing on The Gaza “Pillar of Defense” and the UN Palestinian Statehood Resolution: Implications for Israel

1. H.E. Branko Kesic, Ambassador of Bosnia and Herzegovina; H.E. Pjer Simunovic, Ambassador of Croatia; and H.E. Andreas Michaelis, Ambassador of Germany

2. Keynote speaker Efraim Halevy [center], former Director General of the “Mossad” and former Head of the Israel National Security Council, is flanked by Prof. Eytan Gilboa, Director of BIU’s School of Communication, and BIU Deputy President Prof. Yaffa Zilbershats

3. H.E. Liselotte Kjaersgaard Plesner [far right], Ambassador of Denmark, asks a question, following the panel discussion featuring noted BIU experts

Australian Neuroscientists Visit Campus

4. A delegation of prominent Australian neuroscientists tour BIU’s Leslie and Susan Gonda [Goldschmied] Multidisciplinary Brain Research Center with its Director, Prof. Moshe Bar [fifth from left]. Next to Prof. Bar is the leader of the delegation, Dr. Alan Finkel [sixth from left], Chancellor of Monash University and President-elect of the Australian Academy of Technological Sciences and Engineering [ATSE]

Delegation from Beijing Normal University, China

5. A delegation from the School of Mathematical Sciences at Beijing Normal University tours campus and discusses a joint program in mathematics with BIU President Prof. Moshe Kaveh [center], Prof. Mina Teicher [fourth from left], Director of the Emmy Noether Research Institute for Mathematics [Minerva Center] and [from left to right] Prof. Louis Rowen, Prof. Uzi Vishne, Vice Chair of the Department of Mathematics, and the founders of the Israeli Center for the Advancement of Mathematical Science – Prof. Bernard Pinchuk and Prof. Zvi Arad

French Scientific Attaché on Campus

Bar-Ilan’s VP for Research, Prof. Benjamin Ehrenberg, presents a gift to Dr. Jacques Baudier, the new Scientific Attaché at the French Embassy in Israel, as Yasmine Guyot, the French Embassy’s Scientific Project Manager, looks on
Members of the Board of Trustees gathered at Bar-Ilan in November primarily to focus on the legislative aspects of the University. After attending a Business Forum hosted by the Israel Desk, where Minister of Finance Dr. Yuval Steinitz addressed the group, they took part in the Meetings, listening to the management reports of the University’s senior administration.

The next day Trustees were treated to visits to the University’s state-of-the-art laboratories as well as two roundtable meetings, one with inspiring BIU scholarship students, the other with some of our impressive new faculty members. After a luncheon during which the new Director of the Leslie and Susan Gonda (Goldschmied) Multidisciplinary Brain Research Center, Prof. Moshe Bar, addressed the group, they were briefed on the Middle East by Prof. Mordechai Kedar, of the Department of Arabic.

The Meetings concluded on the final day with a trip to Safed to celebrate the festive cornerstone-laying of the permanent campus of the School of Medicine in the Galilee.

Israel Friends Chairman David Fuhrer Hosts Business Forum with Minister of Finance

1. (l-r): Minister of Finance Dr. Yuval Steinitz, BIU President Prof. Moshe Kaveh, and Chairman of the Council of Trustees Dr. Joshua Rosensweig

2. Dr. Yuval Steinitz at the podium addresses the audience

3. (l-r): Prof. Moshe Kaveh, Dr. Yuval Steinitz and Chairman of the Israel Friends of BIU David Fuhrer, CEO of the Neopharm Group, at the dais

4. (l-r): David Fuhrer, Dr. Yuval Steinitz, Senior Executive Vice President for Planning & Development Dr. Shabtai Lubel, and Deputy President Prof. Yaffa Zibershats
Management Reports and Plenary Session

1. Ramat Gan Mayor Zvi Bar (seated) and Board Member Rami Bubill, Esq.

2. (l-r): National Director of the Canadian Friends Gabi Weisfeld and Director of Global Resource Development Operations Dr. Merav Galili discuss the issues of the day

3. (l-r): Friends of AFBIU, Honorary President Jane Stern Lebell and Don Lebell

4. BIU President Prof. Moshe Kaveh addresses the group

Lunch and Learn

5. At lunch with Prof. Moshe Bar, the new director showcased the exciting research that is being performed at the Leslie and Susan Gonda (Goldschmied) Multidisciplinary Brain Research Center

Briefing on the Middle East

6. (l-r): National Director of Development at AFBIU Howard Charish and Dr. Mordechai Kedar, of the Department of Arabic and the BESA Center, who presented his views on the volatile Middle East
Doctoral Fellows of Excellence and Honors Scholars Roundtable
1. (l-r): Shoshana Naiman, Eldad Kepten, Pnina Frieder, and Mayer Lichtenstein present their study goals and research objectives.

2. Doctoral Fellows and Honors Scholars with the University’s senior academia and administration, Friends and Board members: BFBIU Executive Director Shlomi Rechtshaffen, North America Operations Sara Luzon, Mayer Lichtenstein, Chairman International Friends Vera Muravitz, BIU Rector Prof. Haim Taitelbaum, Honors Scholar David Dentelski, Chairman of the Board of Trustees Dr. Mordecai D. Katz, Prof. Moshe Kaveh, Gabi Weisfeld, VP and CEO of CFBIU Dov Altman, Shoshana Naiman, Pnina Frieder, Eldad Kepten, Jane Stern Lebell, Don Lebell, Vice Rector Prof. Miriam Faust and Howard Charish.

Visit to State-of-the-Art Laboratories
3. (l-r): Vice President for Research Prof. Benjamin Ehrenberg meets with Dov Altman and Dr. Mordecai D. Katz.

4. Dean of the Faculty of Exact Sciences Prof. Chaim Sukenik, who directs the Minerva Center for Nanoscale Particles and Films as Tailored Biomaterial Interfaces, demonstrates the workings of a laboratory in the Leslie and Susan Gonda [Goldschmied] Nanotechnology Triplex to Board members.

New Faculty Roundtable
5. (l-r): New faculty members Dr. Adam Silverstein, Dr. Noa Agmon and Dr. Lee Koren describe their areas of expertise.

6. New faculty with the University’s senior academia and administration, Friends and Board members, (l-r): Dr. Monique Katz, Howard Charish, Dr. Lee Koren, Dov Altman, Gabi Weisfeld, Prof. Moshe Kaveh, Prof. Adam Silverstein, Dr. Noa Agmon, Prof. Yaffa Zilbershats, Conrad Morris, Prof. Haim Taitelbaum and Don Lebell.
Cornerstone-laying Ceremony for the Permanent Campus of the Bar-Ilan University School of Medicine in the Galilee

1. Prime Minister Benjamin Netanyahu congratulates Bar-Ilan University on the cornerstone-laying of the permanent campus of the School of Medicine

2. BIU President Prof. Moshe Kaveh and Prime Minister Benjamin Netanyahu speak to young future doctors – high school pupils from the Medical Cadet Program

3. Applause after the official signing of the founding scroll for the permanent campus of the Medical School

4. Prof. Moshe Kaveh and Prime Minister Benjamin Netanyahu sign the founding scroll for the permanent campus of the Medical School, which will then be buried in the ground at the site of the campus, while senior University administration and government officials look on. Standing (l-r): Dr. Joshua Rosensweig Dr. Mordecai Katz, Chairman of the Upper Galilee Region Council Aharon Valency, Vice PM and Minister for the Development of the Negev & the Galilee Silvan Shalom, Minister of Education Gideon Sa’ar, Deputy Minister of Health Rabbi Yaakov Litzman, School of Medicine Dean Prof. Ran Tur-Kaspa, and Mayor of Safed Ilan Shochat

5. BIU Spokesman and Director of Public Affairs Haim Zisovitch, MC of the event, introduces Rabbi Yaakov Litzman

6. Dean of the Medical School Prof. Ran Tur-Kaspa addresses the audience
Board Members, Friends, University Academia & Administration Celebrate the Cornerstone-laying of Permanent Campus

1. (l-r): Howard Charish, Associate Dean for Research at the Medical School Prof. Haim Breitbart and Prof. Yaffa Zilbershats

2. (l-r): International Friends Chairman Vera Muravitz, Dr. Joshua Rosensweig, Angela Shamoon and friend, and Dr. Mordecai D. Katz

3. (l-r): Jane Stern Lebell, Don Lebell and Associate Dean for Medical Education at the Medical School Prof. Michael Weingarten

4. Selim and Naime Salti, founders of the Naime and Yehoshua Selim Salti Center for Ladino Studies

5. (l-r): Dean of The Mina and Everard Goodman Faculty of Life Sciences Prof. Uri Nir, Director of the Nano Medicine Center at the Institute of Nanotechnology and Advanced Materials (BINA), Prof. Haim Taitelbaum, Dr. Shabtai Lubel, and Prof. Emeritus Shlomo Grossman
Celebrating the Cornerstone-laying of the Permanent Campus

1. Raya Strauss Ben Dror, newly elected Trustee, and Prof. Moshe Kaveh

2. (l-r): Louise and Nissan Khakshouri with Prof. Moshe Kaveh

3. (l-r): Drs. Mordecai D. and Monique Katz with Prof. Ran Tur-Kaspa

4. Medical School faculty member Dr. Meital Gal-Tenamy at the center of a group of her colleagues

5. Medical School faculty member Prof. Mary Rudolf makes a point. At left: Prof. Michael Weingarten
Coming Home to Bar-Ilan

Friends and visitors from both the East and West coasts came to campus recently and were briefed on the latest developments and achievements taking place both on our main campus as well as in the Galilee.

1. Medical School Founders and long-time friends and supporters of AFBIU, Board member Jack and Gitta Nagel at the Medical School Donor Wall

2. When BOT member Geoffrey Stern comes to campus, it’s not just to visit. Pictured here (2nd from right) is Geoffrey participating in a Rena Costa Center for Yiddish Studies course about the illustrious author – Avraham Sutzkever

3. Sara Million and her family visit the Dahan Family Unity Park as they pay tribute to their dear friends Aharon and Rachel z”l Dahan
Planned Giving Professional Advisors Mission

In an auspicious initiative spearheaded by VP Major Gifts Lawrence Cohen and National Director Planned Giving Gilbert Jacobson, eight attorneys came to campus as part of the first Planned Giving Professional Advisors Mission. The participants, who came from all over the United States, received a very in-depth look at some of the University’s newest research, discoveries and accomplishments. Bar-Ilan is confident that these participants will now serve as good-will ambassadors for the University in their home communities.

Their whirlwind tour included an evening in old Tel Aviv, visits to the Faculty of Engineering, the Ludwig and Erica Jesselson Institute for Advanced Torah Studies, the Leslie and Susan Gonda (Goldschmied) Nanotechnology Triplex, the Law Faculty, the Ruth and Emanuel Rackman Center for the Advancement of the Status of Women, the Department of Political Studies, the Music Therapy program and a talk with our resident futurist, Prof. David Passig.

The following day, an exhausted but exhilarated group travelled north to the new Medical School campus in Safed. Before completing their three-day adventure, the group got “down to earth”—literally, at the Bar-Ilan Tell es-Safi excavation site.


2. Joe Rosenberg sneaking a peek in the nano labs

3. Prof. David Passig, of the Pinkhos Churgin School of Education, explores the future with mission participants Lawrence Cohen and Joseph Fishman

4-5. Making music at the Music Therapy Program are 4. (l-r): Mrs. and Mr. Joel Rosenberg and 5. Gilbert Jacobson

6. ...And finally, relaxing at the end of this information-packed mission. Sherri Greenblatt, Lawrence Cohen and Jill Ginsburg with the view of the Sea of Galilee in the background
BARBARA KORT Z"L

With great sorrow we mourn the passing of an extraordinary woman of valor, businesswoman and benefactor of numerous worthy causes, Barbara Kort. An honorary doctorate recipient of Bar-Ilan University, she and her late husband, Fred, took a leading role in promoting relations between nations by establishing the Fred and Barbara Kort Language Studies Building – a landmark on the north campus. Through generous scholarship programs encouraging international exchange, they enriched and touched the lives of scores of doctoral and postdoctoral students in Israel and China who will forever remember the Korts for furthering their higher education.

In 1998 Barbara and Fred established the Fred & Barbara Kort Sino-Israel Postdoctoral Fellowship Program – which, over a period of a decade, allowed 100 Chinese students to conduct joint research with Bar-Ilan research faculty in physics, biochemistry, mathematics, the social sciences and even Judaism, significantly advancing the joint scientific research of Israeli and Chinese researchers. This program was instrumental in forging closer bonds with the Far East.

With the success of the first 100 fellows – including Prof. Qianhong Zhang, the founder of the first Jewish Studies Institute in the Henan province and now Zhengzhou University VP – just last year Barbara Kort arranged for the further absorption of 25 Chinese postdoctoral fellows to Bar-Ilan over five years.

Two years ago Bar-Ilan University inaugurated the Barbara and Fred Kort Doctoral Program in the Humanities, which awarded full academic study and subsistence scholarships to eight outstanding doctoral students who aim to “pass it forward” by making their contribution to Israeli society.

Barbara Kort’s loss will be deeply felt by family and friends alike – however her eternal legacy will live on in the people she has touched, and who, thanks to her vision, will impact positively in Israel and the world at large.
The Canadians are Coming...
And the beat goes on...
Recent visitors from Canada got to really feel (and create) the beat of the campus in a hands-on music therapy session. The Dubrofsky and Butbul families spent an afternoon at the Marcus and Ann Rosenberg Music Building where they experienced the wonderful impact of the Phyllis Dubrofsky Musical Legacy Program.

1. Phyllis Dubrofsky’s family at the dedicatory plaque in her memory
2. Beating it out in the music therapy room

Hands on the Past
3. Amos Sochaczewski (r) is briefed on archaeological finds by Amit Dagan, doctoral student, at the Martin (Szusz) Department of Land of Israel Studies and Archaeology (LISA). Dagan serves as one of the principal archaeologists in the Bar-Ilan Tell es-Safi/Gath excavation site.
4. The Braverman family connecting to the past in the LISA museum
A Meeting of the Minds

1. Amos Sochaczevski (r) is welcomed to the Leslie and Susan Gonda (Goldschmied) Multidisciplinary Brain Research Center by Henia Gal, the Center’s Head of Administration, and Executive VP and CEO of CFBIU Dov Altman

2. Joseph Schier (2nd from left) is updated by BESA researchers Prof. Hillel Frisch (l), expert on Palestinian and Islamic politics, institutions and military strategies, Col. [Res.] Aby Har-Even, former head of the Israel Space Agency and Prof. Shmuel Sandler (r), expert on religion, party and electoral politics in Israel and US-Israel relations

3. (l-r) Prof. Haim Taitelbaum, BIU Rector; Natanel Shavit, 2012 Schulich Leader; David Dentelski, 2012 Schulich Leader; Seymour Schulich, Officer of the Order of Canada; Prof. Moshe Kaveh, BIU President; and Yakir Gorski, 2012 Schulich Leader, at the BIU event honoring the 2012 Schulich Leaders

And Back at Home...
The Canadian Friends paid tribute to its most recent Honorary Doctorate recipient, Marc Gold. A native of Montreal, he holds academic degrees from McGill University, the University of British Columbia and Harvard Law School and is a member of the Bar of Ontario. He currently is Vice-President of Maxwell Cummings & Sons Holdings Limited and lectures at the Faculty of Law, McGill University. He is the national Chair of the Canada-Israel Committee, First Vice-President of FEDERATION CJA, a Board Member of the Jewish Agency for Israel, and a member of the Executive Committee of United Israel Appeals Federations Canada.

An Honorary Tribute

4. Marc Gold (2nd from right) is welcomed into the club by fellow Canadian Honorary Doctorate recipients (l-r) Norman Sternthal, Sam Gewurz and Dr. Thomas D. Hecht

5. Jack Dym and Nancy Cummings Gold

6. David Brody and Dov Altman

7. Norma Cummings and Marcel Adams
Getting Down to Business at the Israel Desk

With quarterly events for the local business community, the Israel Desk has been quietly busy. These very well attended sessions include a featured guest speaker who addresses the groups in an informative and timely fashion.

The Israel Business Forum Hosts Yoav Galant, a General in the Israel Defense Forces and Former Commander of the Army’s Southern Command

1. Welcoming Gen. Galant (2nd from right) are Prof. Haim Taitelbaum, Rector; Prof. Moshe Kaveh, BIU President; David Fuhrer, Chairman of the Israel Friends of BIU and CEO of the Neopharm Group; and Prof. Yaffa Zilbershats, Deputy President

2. Gen. Galant addressing the Forum

Young Business Leader’s Assembly

Bar-Ilan University, in cooperation with the Israel Building Center, under the management of Eran Rols, CEO, arranged a Business Academic Forum aimed at forming closer cooperation between young Israeli businessmen and BIU academia. Guest speaker David Fattal, Owner and CEO Fattal Hotels (center), along with Prof. Moshe Kaveh and Eran Rols

Spotted on Campus

3. Erez Vigodman, President & Chief Executive Officer, Makhteshim Agan Group, lectures to students of the Bar-Ilan Gender Studies Program

4. Smadar Barber-Tsadik, CEO of The First International Bank of Israel Ltd., being shown around the School of Medicine in the Galilee by the Dean, Prof. Ran Tur-Kaspa.
The Inauguration of the Eli Hurvitz z”l Research and Laboratory Building

The Eli Hurvitz z”l Research and Laboratory Building at the Bar-Ilan University School of Medicine in the Galilee was inaugurated in November. At the moving ceremony, scholarships were presented to outstanding medical students and medical researchers, as well as promising local high school pupils who are being nurtured towards a medical career within the framework of Bar-Ilan’s Medical Cadet Program.

1. Dalia Hurvitz, who established the Research and Laboratory Building in memory of her late husband, Eli Hurvitz
2. Prof. Ran Tur-Kaspa, Dean of BIU’s new School of Medicine in the Galilee, Dalia Hurvitz and Prof. Moshe Kaveh, BIU President
3. Dalia Hurvitz with her son Haim Hurvitz, next to the Eli Hurvitz memorial sign
4. Dalia Hurvitz with her family, together with Prof. Ran Tur-Kaspa and Prof. Moshe Kaveh
UNITED KINGDOM

An Ambassadorial Visit
H.E. Matthew Gould, the UK Ambassador to Israel, was the distinguished guest of the British Friends of Bar-Ilan for an inter-university get together. Representatives of all of Israel’s universities were privileged to hear the Ambassador discuss his commitment to increasing ties between British and Israeli institutions in areas such as regenerative medicine, neurology, nanotechnology, space and robotics.

Additionally, he spoke about BIRAX (Britain Israel Research and Academic Exchange Partnership) that is an initiative of the British Embassy, the British Council and the Pears Foundation. Its aim is to deepen and promote collaboration between the UK and Israel.

1. Shlomo Rechtshaffen, BFBIU Director (center) and Ambassador Gould (3rd from right) welcome the university representatives

Securing the Home Front
2. BESA Center researcher and expert on Middle-East security Dr. Mordechai Kedar (l) is welcomed to London by Shlomo Rechtshaffen, BFBIU Chairman Romie Tager, Q.C., and Lynn Julius, Chairman of HARIF, the organization that looks after the rights of Jews from Arab lands.

Legally Speaking
3. Romie and Esther Tager are hosted in the Law Faculty by former Dean Prof. Arie Reich (l) and current Dean Prof. Shachar Lifshitz

IBEROAMERICA

Olá, Brazil
The Jewish community of Sao Paulo extended a warm welcome to BIU Deputy President Prof. Yaffa Zilbershats who came to Brazil to participate in a joint academic venture with the Sao Paulo University. During her visit, Prof. Zilbershats met with prominent local lawyers.


5. Prof. Yaffa Zilbershats and Adv. Ary Solon
EUROPE

B’nai Brith Gala - France

With several main events, including a gala B’nai Brith dinner, the French Friends of Bar-Ilan have been very active. All of the proceeds of the event will be allocated towards Bar-Ilan’s School of Medicine in the Galilee. Prof. Ran Tur-Kaspa, Dean of the Medical School, was the keynote speaker and H.E. Yossi Gal, Israeli Ambassador to France, was among the distinguished guests at this well attended evening. Dinner entertainment in the form of a theatrical performance by the B’nai Brith members and the showing of a special film about the School of Medicine were some of the featured highlights of the event.

1. (l-r) Israeli Ambassador to France His Excellency Yossi Gal, Serge Dahan, President of B’nai Brith France, Olivier Iteanu, President of Bar-Ilan France and Prof. Ran Tur-Kaspa, Dean of the School of Medicine

2. The Scientific Committee of B’nai Brith who came to learn about the School of Medicine at the Gala are (l-r) Urologist Prof. Marc Zerbig; Dr. Paul Atlan, Gynecologist and Consultant for Ethics and Religion; Prof. Lionel Naccache, Neurologist; Rheumatologist Prof. Raoul Gozlan and Dr. Jean Rotman, Gynecologist

3. B’nai Brith members Dr. Jean Rotman and Michele Rotman with Serge Dahan in his other role of the night — leading actor in the theatrical performance

4. Leading members of the French business community joined Prof. Tur-Kaspa for an informative breakfast meeting. (back row l-r) Olivier Iteanu, President of Bar-Ilan France, Mr. Monssoh, Thierry Abid, Robert Kalocsai, Treasurer Bar-Ilan France, Haim Stemmer (front row l-r) Armand Stemmer, Nadine Szifersztejn, General Secretary BIF, Prof. Ran Tur-Kaspa

And Also in Paris...

5. The Executive Board of BIF welcomes Dr. Merav Galili, BIU Director of Global Resources Development Operations (seated, 2nd from right), to a planning and strategy meeting

And on Campus...

6. Mr. and Mrs. Hans von Bibra of Germany are given a tour of campus by David Mager, BIU Consultant for Property and Legacies (at left)
The recently established **Raymond Ackerman Chair in Israeli Corporate Governance** held its first annual conference this past June. The well-attended conference entitled “**The Business Concentration Committee and Other Pending Issues in Israeli Corporate Governance**” was sponsored in conjunction with Israel’s leading economic newspaper, *The Marker*.

At the conference, the Ackerman Chair proudly presented Prof. Lucian [Arie] Bebchuk, Director, Program on Corporate Governance, Harvard University, with the “Man of The Year” award.

1. Conference attendees listen to Prof. Bebchuk's keynote address

1. [I-r]: Prof. Beni Lauterbach, Chair of the Raymond Ackerman Family Chair in Israeli Corporate Governance, presenting the award to Prof. Bebchuk

### A Well-Deserved Honor

Veteran fundraiser Vera Muravitz was honored recently at a ceremony unveiling a plaque that was donated in her name by Australian friends of Bar-Ilan Dr. Joseph Frölich and Mrs. Helen [z”l] West. The plaque includes the aptly suited quote from the traditional *Eshet Chayil* sung on Friday nights: “Many women have attained valor, but you have surpassed them all.”

2. “Family nachas” — Vera surrounded by daughter Simone, husband Mervin and son Gilad
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FOCUS ON THE BRAIN

Prof. Moshe Bar, Director of BIU’s Leslie and Susan Gonda (Goldschmied) Multidisciplinary Brain Research Center

A Decade of Discovery at the Gonda Multidisciplinary Brain Research Center

A Trailblazing Musician with a Mind of His Own

Brain, Behavior and the Gene in Between

Reversing the Brain Drain