The Nano-Bio Interface

Behind the Second Lebanon War

Google Recruits at TAU
Welcome, Reader

This first issue of TAU Review launches our new university magazine. No publication of this size can capture the breadth of activities at so large a university, so we have selected for you the most interesting and impressive stories we could find on TAU research, teaching and community activity. TAU Review replaces Tel Aviv University News and complements TAU Insider, our new newsletter focusing on the university’s supporters and special events.
Cover Story: Aiming Small, Thinking Big

Precision drugs, very early diagnosis of disease, and much smarter (and smaller) computers are up-and-coming applications of TAU research that combines nanotechnology with the biological sciences.

Four Ways of Looking at the Lebanon War

A new book being released by TAU’s Institute for National Security Studies (INSS) offers fresh insights into the motives of key players.

Mistaken Identity

Why would Arab students want to pass off as Jews? A TAU study examines minority coping strategies.

Googling Yossi Matias

The head of Google’s new R&D program in Tel Aviv, TAU professor Yossi Matias, explains why the Internet giant is targeting Tel Aviv University students.

Seconds from Disaster

A TAU executive master’s program is helping Israel prepare for catastrophic events.

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If you ask her what she does for a living, TAU professor Rimona Margalit will tell you matter-of-factly that she is working in nanobiomedicine. Drawing on the fields of biology, chemistry, materials science, physics and engineering, Prof. Margalit investigates cell cultures in the hope of one day being able to design a cancer treatment that destroys only infected cells while leaving healthy body cells intact.

“I could never probe into the surfaces of tumor cells if it weren’t possible to combine nanotechnology and biology,” says Margalit of the Department of Biochemistry, Wise Faculty of Life Sciences. “It takes strengths in both fields to understand how individual molecules of drugs bind to – and destroy or inhibit – tumors. Based on my research, my lab is building nano-sized pills called nano-carriers that will be able to pinpoint individual cancer cells and deliver drugs only to them.”

We need to help scientists understand each other when speaking ‘nano.’

Margalit explains that, in today’s market, 99 percent of medications that are given via an injection or infusion, or in tablet or syrup form, are free to roam around the body. “This diminishes efficacy and causes damage to healthy cells, leading to adverse side effects and toxicity,” she says.

Building capsules less than 300 nanometers in diameter (one nanometer equals one-billionth of a meter), Margalit, who holds over a dozen patents in her field, aims to create “a depot for drugs that will only be released at the tumor cell.” Tiny drug carriers, or nanoparticles, like the ones Margalit proposes are not as far-fetched as they sound; Johnson and Johnson’s Doxil, an anti-ovarian cancer drug with annual sales of $400 million, has shown that nanobiotechnology is viable in the drug market.

Among a new breed of hybrid researchers, Margalit joins the ranks of those at TAU and around the globe whose small-scale work promises large-scale dividends.

Nanobiotechnology, bionanotechnology, or simply nano-bio are expressions used interchangeably for a new multidisciplinary field that is firing the world’s imagination. At one-thousandth of the width of a human hair, the nano scale can barely be visualized with the help of an electron microscope. But far beyond where our eyes can see, nano-bio gives researchers the tools to work at the molecular level, atom by atom, to develop materials and structures with special capabilities that will transform medicine, biotechnology, microelectronics and many other industries.

“This is where TAU has an edge over other universities in Israel and the world,” says Prof. Hagit Messer-Yaron, TAU’s Vice President for Research and Development. “We’ve always been strong in combining the biological sciences with engineering, physics and chemistry; and for nano-bio, we’ve made a conscious, concerted and successful push to create an optimal multidisciplinary environment.”

At TAU, there are several bodies that are laying foundations in nano-bio. They include the Center for Nanoscience and Nanotechnology, the umbrella framework for all nano-related research at TAU; the Jack H. Skirball National Center for Biomedical Nanoscience; the Ilona Rich Institute for Nanoscale Bioscience and Biotechnology; the Marion Gertner Institute for Medical Nanosystems; and the Edward Seroussi Chair for Protein Nanobiotechnology.

A number of TAU scientists are also working within “Nano2Life,” a collaborative network of the European Union involving 23 major institutions and companies in the nano-bio field. Three years ago, TAU was chosen from among all the Israeli academic institutions to be gatekeeper of a new fund provided by Nano2Life to encourage nano-bio research projects in Israel and between Israel and Europe.

“Nano-bio scientists are laying the infrastructure right now for future scientific traffic,” says Prof. Ehud Gazit of the Department of Molecular Microbiology and Biotechnology, Wise Faculty of Life Sciences.
Can scientists mimic the olfactory receptors in a dog’s nose to sniff out bioterrorist threats miles away? Can they make a diagnostic kit that can detect a single cell of cancer inside our bodies and then obliterate it with a micro-machine? These are directions being pursued by TAU researchers in nanobiotechnology – a new branch of science that can tackle problems and make advances that neither nanotechnology nor biology can do alone. But how is this complex new technology making strides in academia; and when will biological concepts catch up with engineers raring to build blueprints for bionic limbs or genetic software that will help us live forever?
Sciences, who leads the nano-scale assemblies group in Nano2Life.

“As for the implications, we really don’t know yet,” says Gazit. “When the transistor was invented in the late ’40s, people understood that this was an important discovery but they weren’t sure what to do with it. Only 30 years later, when the technology became the beating heart of computers and other electronic gadgets, did it become clear that the transistor had been put to good use. This is the thing in science: you learn how to make something and other people learn how to use it.”

Once the groundwork has been laid, and some say as early as 10 years from now, nano-bio is expected to give rise to “nano-robots” that could perform medical procedures such as very precise brain surgery or the repair of single defective cells; nano-sized structures that could be applied to tissue engineering and early diagnosis of disease; and nano-machines that could function as artificial limbs and organs.

In tackling bio-nano questions, TAU researchers are asking themselves the same question that has occupied academics and their institutions since time immemorial: Should research answer specific human needs? Or should science be motivated purely by curiosity?

On the applied side, electrical engineer Yosi Shacham-Diamand pursues nano-based research geared toward real-life products, such as tiny, ultra-powerful computers based on living cells, or extraordinarily sensitive biosensors. Speaking for basic science, physicist Eshel Ben-Jacob thinks that concepts in biology should be better understood before nanotechnology is applied to living systems.

Yet it is precisely these different schools of thought that feed nano-bio activity and collaboration across the disciplines.

“Today we are limited to what nature gives us,” says Prof. Shacham-Diamand of the Fleishman Faculty of Engineering, incumbent of the Bernard Schwartz Chair in Nanoscale Information Technology and coordinator of TAU activity in Nano2LiFe. “But using nano, we engineers can create artificial structures and materials in the dimensions of a molecule that dramatically improve the performance of things like drugs, healthcare and medical treatment, and information technology,” he says.

“Imagine a computer the size of a watch with over 1,000 gigabytes of memory you would never have to erase, and that would mirror human memory in its ability to learn things on its own. We need practical engineering
knowledge to drive these kinds of advances,” he says.

A biochip that TAU scientists are working on could one day be bought at a convenience store and used to instantly test for a cold, or be employed at airports to detect infectious diseases like SARS or avian flu. Prominent in this area is Prof. Judith Rishpon of the Molecular Microbiology and Biotechnology Department.

Another TAU scientist, Prof. Shmuel Einav, incumbent of the Herbert J. Berman Chair in Vascular Bioengineering at the Fleischman Faculty of Engineering, also has his sights set on battling disease. He is working on new nanotechnologies that could go into a patient’s blood vessels and identify vulnerable plaque – a collector of fat and calcification that leads to a sudden heart attack. “The need is very high,” says Prof. Einav, “because vulnerable plaque cannot be identified in an ECG and people may not know they have this dangerous condition.”

Not far from commercial feasibility is the area of sensing and monitoring devices. Prof. Shacham-Diamand’s research in biosensors promises to deliver sensitivities in equipment that are substantially higher than current techniques can deliver.

“The ability to detect even minute amounts of toxins, illegal drugs, explosives or pollutants will revolutionize homeland security and environmental monitoring, as well as medical practice,” comments fellow scientist Ehud Gazit.

Prof. Gazit works in a field called molecular self-assembly. “Basically I play with molecules,” he explains. “We can organize nano-sized tubes into a ‘molecular forest’ – with millions of nanotubes on an area the size of a pinhead – and use this dense and tightly arranged structure as the recognition element for biosensors,” he says, adding that the fact that these tubes can be aligned is an important part of the advance.

“Gazit’s research is highly promising,” says Nissim Chen, Director of Business Development for Life Sciences at Ramot, TAU’s technology transfer company. “We mustn’t forget, however, that we are still in the early stages of commercializing our nano-bio patents at TAU,” he notes. “We have about 40 patents spanning the areas of drug delivery, sensors, biotechnology and optics, but we have several years to go yet before we can translate our scientists’ findings into real world applications.”

Prof. Eshel Ben-Jacob thinks that nano-bio needs more thinking on the conceptual level, or in other words, more theoretical investigation of nature’s fundamentals, before it can fulfill the practical aspirations of engineers. He is the incumbent of the Alex Maguy-Glass Chair in the Physics of Complex Systems at the Raymond and Beverly Sackler School of Physics and Astronomy.

“The basic mechanisms of nature,” Ben-Jacob explains, “are not based on the same principles of man-made machines. Biological systems have shifting functions and cannot be developed from the blueprint design of engineers in the way one would build an automobile. Unlike...
a car factory, biological systems are not economic from the point of view of an engineer, nor are they made from a minimal amount of parts. Also, biological entities like cells can replicate themselves. Cars cannot.”

Ben-Jacob points to the vivid colonies of bacteria he has grown, stained and stacked on his desk in Petri dishes. “It is believed that bacteria can absorb or generate nanoparticles called magnetite which help them navigate magnetic fields and to know up from down. Clearly, bacteria know many nano-sized secrets that we don’t, and this is just one example of how nature can teach us something,” he says.

Ben-Jacob recently patented a conceptual model for a “DNA transistor.” Based on the idea that biological systems rely on electrical signals to transfer such things as ions and proteins throughout the body, he wondered if he could mimic the process by building a tiny, nano-sized transistor using DNA. “I showed theoretically that DNA pieces could tell enzymes how to assemble in the right way to build an electrical circuit inside the body,” he says.

Along with Ben-Jacob, TAU professors Abraham Nitzan, Shachar Richter and Joseph Klafter, all of the Raymond and Beverly Sackler School of Chemistry, are working on theoretical investigations that could potentially feed nano-bio advances later down the line.

Prof. Nitzan, incumbent of the Rivka (nee Schechter) and Iser Kodesz Chair in Chemical Dynamics, wonders: What might man-made nanostructures encounter in the unpredictable cellular environment of the human body? Will they get bogged down? “We have to re-examine some of our notions about electron and energy transfer from molecule to molecule,” says Nitzan, who investigates chemical processes that might propel such systems in the cellular environment.

Nitzan’s field is important for nano-bio because it involves the understanding of both electrical and molecular components of the living organism. How will molecular junctions conduct electricity on a cell surface? How will ions move in and out of artificial cells? Why are unusual optical and magnetic phenomena occurring at the nanoscale? These are some of the questions that Nitzan, as well as other chemists and physicists at TAU and around the world, are asking in the hope of one day having their research underpin the creation of molecular motors.

**Diabetes:** Hila Dagan-Moscovich, a PhD candidate at the Wise Faculty of Life Sciences, is developing a tiny biosensor, smaller than a pea, that could be implanted in the body of a diabetes sufferer to monitor sugar levels. “I bridge between the worlds of enzymes and metals,” says Hila, who is supervised by Professors Amihay Freeman and Yosi Shacham-Diamand.
This effort in basic research today could lead to futuristic nanoscale devices, such as cellular computers hardwired to genetic programs that would keep our organs from aging. This would be a world where we could download software updates for our immune system; and where individual cells would be programmed to travel through our arteries to check for cholesterol build-up and to monitor for infectious diseases or cancer.

Dr. Dafna Benayahu of the Sackler Faculty of Medicine characterizes stem cells for use in tissue engineering. “Focusing on adult stem cells, we hope to lay the groundwork for developing a nano-sized cellular robot that could produce highly specific populations of cells for healing a variety of ailments,” she says. The lab-grown tissue could be used to build new cartilage, repair a failing heart muscle or replace a lost limb.

Another project with far-reaching implications is that of Dr. Yael Hanein of the School of Electrical Engineering, who, in collaboration with Prof. Ben-Jacob, grows live neural networks – brain cells connected to one another – on microchips. Their patented breakthrough involves using nanotechnology to imitate the natural conditions that neurons need to flourish. Such research could ultimately lead to understanding thought processes or curing neurodegenerative diseases. “The more down-to-earth challenge is to look at the effect of toxins and materials on neurons and nerve cells,” says Hanein.

Based on the hype, big dreams and excitement of the researchers, nanobio promises to be the next big thing in science, but is the funding catching up? Israel is good at identifying promising directions in technology, and the government announced in 2006 that it was earmarking $82 million in matching funds over the next five years for nanotechnology research and development at the nation’s universities.

“But despite the Israeli government’s generous investment,” says Prof. Messer-Yaron, TAU Vice President for R&D, “TAU still relies heavily on external research grants and private donations to build up its core nano facilities and resources.”

“No less important,” says Prof. Ori Cheshnovsky, Director of TAU’s Center for Nanoscience and Nanotechnology, “is helping scientists across the disciplines understand each other when speaking ‘nano.’ Physicists must explain nanodots to chemists; biologists the principles of protein design to engineers; and above all, they must all find a way to work cooperatively.

“That is why,” Cheshnovsky stresses, “the university set up its Center for Nanoscience and Nanotechnology from the start as a multidisciplinary framework involving four faculties: engineering, exact sciences, life sciences and medicine. We have sought to create a ‘nano-culture’ on campus, and by now we have over 50 groups making strides in the field.”

The Center for Nanoscience and Nanotechnology: http://nano.tau.ac.il/
Israel’s Second Lebanon War raised more questions than answers. Why didn’t Israel crush Hizbullah? Were Israel’s decisions the right ones? Just what was Nasrallah thinking? In an upcoming book, researchers at TAU’s new Institute for National Security Studies (INSS) offer new and provocative viewpoints on the conflict. Here’s a sampling.

The Israeli public: Expectations gap

The Israeli public’s disappointment and frustration at the outcome of the Second Lebanon War was largely due to a wide gap in expectations between what the public was encouraged to believe – that the IDF could defeat Hizbullah and return its captive soldiers – and the more realistic goal of containing Hizbullah and limiting its ability to harm Israel, believes INSS Senior Researcher Brig. Gen. (ret.) Shlomo Brom, a former director of the Strategic Planning Division of the Israel Defense Forces (IDF) General Staff.

This gap in expectations reflects a lack of understanding of the type of war the IDF was fighting – a limited war against a guerilla organization operating from within a weak state that lacks control on its territory. “It’s impossible to make a guerilla force cease fighting by using military means alone,” states Brom. “Fighting a guerilla force is like fighting a chronic disease – there is no absolute remedy for making it disappear, but many of the symptoms and outbreaks can be treated and managed. The long-term ‘cure’ involves creating the conditions for a negotiated settlement.”
The delay in setting more realistic goals prolonged the war by an additional three weeks, “during which it was conducted with no particular logic that would translate military achievements into political ones.” The main lesson of the war, concludes Brom, is that in a conflict of this kind, there is tremendous importance in the way expectations are presented to the public.

2 The Israeli government: Flawed decision-making process?

How is it, asks Major-General (ret.) Giora Eiland, that on the day the war started, no one in the government knew about the status of the IDF’s readiness for war, and there was no one in charge of that matter?

This is in large part due to an organizational flaw in the Prime Minister’s Office, believes Eiland, a Senior Researcher at the INSS and former National Security Adviser to Prime Minister Sharon. There is no strategic unit independent of the IDF that is responsible for monitoring crucial security and political matters, analyzing the different options for taking decisions, and updating the Prime Minister regularly.

According to Eiland, the government had three choices when Hizbullah attacked: (1) to retaliate in a limited manner; (2) to go to war; or (3) to postpone the war for a few months while preparing for it. In the absence of a staff that could ask the hard questions and review alternatives, the leadership was entirely dependent on the IDF and could merely approve or disapprove its proposals.

There is a clear need for a new strategic apparatus at the prime ministerial and security cabinet level, recommends Eiland.

3 Hizbullah: Testing the “spider-web’s” strength

For years Hizbullah leader Hassan Nasrallah mocked Israeli society, comparing it to a spider-web – intricate, elaborate, but weak and easily destroyed. True, he argued, Israel had a nuclear bomb and the strongest army in the region, but Israelis’ reverence for human life and the hedonistic nature of Israeli society made it weak and unable to sustain continued war and bloodshed.

The spider-web theory formed the basis of Hizbullah’s self-perception as an organization, says the INSS’ Brig. Gen. (ret.) Meir Elran, former Deputy Director of Military Intelligence. The organization believed it could break Israeli society by inflicting serious harm on Israel’s civilian population.

Hizbullah was wrong. Elran believes that while it is true that many Israelis fled their homes in the north, the civil front was far more resolute than is commonly believed. People returned to the north before the war was over and quickly resumed normal life. In the future, however, the public’s ability to withstand such an attack will depend on its justification of the war and on its confidence that government authorities are protecting its safety.

4 The United States: Keeping a low profile

In an analysis of United States policy during the war, INSS researcher Dr. Roni Bart shows how the administration was driven by its overall aim of weakening radical forces in the region such as Syria, Iran, Al Qaeda and Hamas, while strengthening democratization. When war broke out the immediate goal was to allow Israel to weaken Hizbullah, but not so much as to trigger a civil war in Lebanon and damage its fledgling democracy. For this reason the administration took a low diplomatic profile for the first ten days of the crisis until it became clear that Israel's prolonged air strikes were losing their efficacy and what was needed was a massive ground offensive to “win” the war. When Israel failed to launch a ground offensive the US became concerned that Israel had “lost” to Hizbullah and thereby strengthened the organization and its proxy leaders, Syria and Iran, in the Arab world.

In the final reckoning, even though Hizbullah was not hit by the IDF as much as the US administration hoped for, the organization’s public image and military capabilities were substantially weakened, concludes Bart.

The items above were excerpted from the manuscript for The Second Lebanon War, edited by Shlomo Brom and Meir Elran.
They are called Fares, Aisha, Nur and Azmi, and they are Israeli Arabs – Palestinian Arab citizens of Israel, as they define themselves – studying at the university. They learn in Hebrew, a language that is not their mother tongue, and are exposed to cultural codes that differ from their own. Away from their home communities for the first time, they often encounter prejudice in their daily dealings with the Israeli Jewish majority. A TAU study examines how they have developed a coping strategy to deal with discrimination by passing themselves off as Israeli Jews.

**Education** master’s student Betty Goren investigates the relationship between identity and social stereotypes in Israel. For her master’s thesis, she interviewed about 20 Arab students who agreed to share with her, on an anonymous basis, their experiences as Arabs on campus. Goren learned from the respondents about the rights that are denied to them because they are Arabs, such as the right to choose where to live or where to spend their leisure time.

A student who called himself Roni explains: “You call up about renting an apartment and speak to the landlord, agree to meet, and then he asks for your name. So you say Tariq or Mohammed or Ali. And then he replies, “Well look, the apartment isn’t actually mine, it’s my wife’s. We’ll get back to you.” Or sometimes they say, “Look, we’ve already found someone.”

Some of the Arab students feel that they are treated differently on campus. Michelle said that when she manages to “pass” as a Jew, she gets better treatment from departmental secretaries than after they learn she is Arab. The attitude of security guards can be particularly humiliating, she says.

There are approximately 1,300 Arab and Druze students at TAU – 1,000 bachelor’s, 240 master’s and 50 doctoral – in diverse fields across the campus. The university’s Ruth and Allen Ziegler Student Services Division helps them integrate into study programs and the dormitories through a network of services offered by the Student Welfare Unit, including financial aid, psychological and career counseling and academic guidance. Maya Rabia, Aid Coordinator for Arab students, says: “An effort is made to make Arab students feel part of the university. This includes a recent decision to include Arabic on signs around the campus and to ensure that all computer keyboards on campus feature Arabic letters.”

These practical measures are complemented by academic units at the university that function as think tanks in the field of Jewish-Arab relations, such as the Walter Lebach Institute for Jewish-Arab Coexistence through Education, the Konrad Adenauer Program for Jewish-Arab Cooperation, and the Elga Cegla Clinical Legal Education Program.
Jews. For example, a young Arab man named Ibrahim calls himself Avi when he sits in a café in Tel Aviv and customer names are called out over the loudspeaker. Those who seek to blur their identity must meet specific requirements: familiarity with the language and accent of the majority, and the adoption of their dress, gestures and behavioral patterns.

Goren explains that, in extreme cases, the reasons for “passing” may be either a desire to leave the group of origin or, conversely, “an effort to prove the stupidity of the majority group and to show that all their claims about the ‘others’ differences are mere rationalizations.”

Blurring racial categories

The shock that is caused when the identity of the “impostor” is revealed illustrates the fluid nature of stereotypes. If Arabs can behave like Jews and be considered Jews, then their “Arabness” and its associated stereotypes have no basis in reality. This is the advantage of the passing strategy – it blurs categories that are taken for granted, says Goren.

The decision to cross social boundaries is not always a conscious one; sometimes it occurs in response to the mistaken assumptions of others. Amir recalled: “For a while I used to go to a gym and I made three friends there. They used to laugh about Arabs, and I would half laugh and half be disgusted, and I just didn’t tell them… It was awful. I don’t know why I did it. At that moment I just didn’t know what to decide.”

Should the “impostors” reject or accept the mistaken identity? It emerges that the option of correcting the mistaken identity is far from simple, even if the “imposter” sometimes faces feelings of oppression, as the respondents noted. Deliberate attempts to conceal their identity to prevent harassment and humiliation are usually made in the context of security inspections.

The phenomenon of long-term passing is more complex. Roni comments: “I have a friend who is working in a law firm now. No one in the firm apart from the manager knows that he is Arab. It’s totally crazy. He lives in a world that is actually two worlds. He has to pay attention to everything he says. I can’t understand it at all. That’s his way of coping with things, but it isn’t a good way. It won’t solve the problem.”

“Immigrants in their homeland” is the epithet Goren uses to refer to Arab students who hide their identity in this way. One of the most interesting aspects of her study relates to the respondents’ feelings about this phenomenon. Most of them felt that passing is reprehensible and negative. A few felt that it was tantamount to spying and to treason against their national group. A few argued that passing is illegitimate since it damages the minority’s struggle for its rights.

Goren notes that although recent studies point to a blurring of social boundaries between groups, her findings reinforce the existence of fixed identities and clear boundaries, as well as the considerable difficulty encountered in transferring from one group to another.

Goren’s research was supported by a scholarship from TAU’s Tami Steinmetz Center for Peace Research and supervised by Prof. Daniel Bar-Tal of the Constantiner School of Education.

Goren notes that in any multicultural society relations of inequality emerge between different groups, with the majority group enjoying privileges, prestige and ownership of resources, while the minority group, due to its distinct physical or cultural characteristics, receives different and unequal attention. In Israel, this phenomenon is exacerbated by the ongoing Israeli-Arab conflict and by the fact that the Arab minority is usually perceived as hostile.

An evasive and secretive tactic

One way in which the minority group copes with discrimination is by adopting the majority identity – a coping strategy known as “passing” which Goren describes as an evasive and secretive tactic that is difficult to study due to people’s reluctance to even admit to it. The term “passing” originated in the United States and is an abbreviation for “passing as white.” It refers to individuals of mixed origin who adopted a “white” identity to enjoy the rights granted to the higher status group.

Goren investigated this phenomenon among Arab students who, in certain situations, “pass” as Israeli
Googling Yossi Matias

Tel Aviv University computer scientist Yossi Matias was recently tapped to head Google’s new research and development center in Tel Aviv. He tells TAU Review editor Louise Shalev why one of the world’s most influential high tech companies is targeting Israeli talent.
**How do Google and Israeli culture fit?**

It’s a very good fit. Google’s strength is in its inventive and enterprising engineers; Israelis, for their part, are known for their ingenuity, chutzpah, “out of the box thinking,” and passion for their work. Israelis are extremely well suited for developing innovative technology, in numerous areas, and applying it widely.

Also, Google is a rather flat organization — a meritocracy where titles count less than achievements. Our computer scientists work in a milieu that is similar to academia, with a lot of freedom. This suits the Israeli mindset.

**What do Israeli computer scientists have to offer a company like Google?**

Israeli computer scientists and software developers have strong academic backgrounds and often combine this with service in elite computing units of the Israel Defense Forces and experience in industry. This is what makes the Israeli candidate unique. They develop in a strong venture environment.

**Who is the ideal Google candidate?**

The ideal Google candidate has strong analytical skills in math and computer science for creating algorithms that function ever-more efficiently as problems become more complex and for addressing new computational problems. In addition, the candidate should have strong software development skills for writing programs that can, for example, deal with millions of users and billions of documents. These are where an outstanding education comes in, and this is why we take a relatively high proportion of PhD and MSc graduates from the top universities.

Our preferred candidates have solid roots in academia and good aptitude for industry — generalists who are interested in both computer science and engineering.

**Do you see Tel Aviv University as a source of recruitment?**

Yes. Definitely. We see TAU as a top source of recruitment for full-time positions as well as internships. In fact we’ve already recruited a few TAU graduates from all degree levels – bachelor’s, master’s and PhD — and we also held a “Google Day” on campus in March.

**Will there be joint projects between Google and TAU?**

Google’s formal relationship with the university is through the School of Computer Science’s Industrial Affiliates Program, a framework that fosters relations between academia and industry. The many forms of collaboration could include research awards and taking on interns. Sharing with students and faculty some of the questions Google deals with could be most interesting and beneficial to both sides. From my experience, such exposure can lead to innovative theoretical research.

**What are TAU’s strengths in computer science?**

TAU’s School of Computer Science is an internationally recognized center with world-renowned, award-winning faculty and students. Faculty members are leaders in their respective fields. Geographically, the university is situated at the heart of Israel’s high-tech sector and many students have some good work experience. I was personally fortunate to complete at TAU both my undergraduate studies and my PhD, and I am proud to be a member of its faculty.

**What kind of training is being done at TAU that is cutting edge?**

What is truly cutting edge is the profound and diversified research environment that gives students a combination of knowledge in the fundamentals together with a good understanding of the engineering aspects of technological problems.

**Why were you chosen to head the new Google R&D center?**

While my main focus over the years has been scientific and academic work, I also gained extensive experience in combining this with technology development, entrepreneurship, and high-tech organization building.

**Which products will be developed in Israel?**

The technologies and applications we develop here will feed Google’s global efforts to organize the world’s information in all imaginable areas and make it more accessible, useful and comprehensive. I think it is still not clear where, if at all, the limits to such work might be. We Israelis have a lot to offer in this field.

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**Prof. Yossi Matias** is a faculty member of TAU’s School of Computer Science, Raymond and Beverly Sackler Faculty of Exact Sciences. He has been a visiting professor at Stanford University and has worked at Bell Laboratories. Prof. Matias, the author of numerous articles and inventor of over 20 patents, is the recipient of the 2005 ACM-EATCS Gödel Prize in Theoretical Computer Science for his work on algorithms and analysis of data streams. He has over a decade of experience in the high-tech sector as an analyst, entrepreneur, executive and advisor in the areas of databases, business intelligence, data security and search technologies.
Imagine this: It is 10:35 in the morning and a major earthquake has just hit Israel’s coastal plain. Which agency decides whether the last emergency crew available should be sent to the 40-story office building that’s about to collapse or to the housing project that’s on fire? Which outfit is expected to take charge of overall response and rehabilitation efforts?

Answering such questions and helping Israel better handle national disasters is the aim of TAU’s new multidisciplinary Executive Master’s Program in Emergency and Disaster Management. The program responds to the vital need, as demonstrated by events such as 9/11 and Hurricane Katrina, to synchronize and upgrade disaster management processes and policies on a nationwide level.

Preparing the nation

The intensive, year-long program, run by the School of Public Health at the Sackler Faculty of Medicine, is providing a new cadre of emergency and disaster professionals with the academic and practical insight they need to cope with large-scale disasters. At the same time, it promotes research in the field, which is currently limited in scope.

“Our program is creating a network of knowledge that will revolutionize the entire disaster management field in Israel from the bottom up,” says program co-director Dr. Kobi Peleg. “We’re taking mid-level managers, giving them the tools and protocols they need for effective and cooperative disaster preparedness and management, and sending them back to their organizations to pass on what they’ve learned and, we hope, improve national policy,” he says.

Providing the big picture

The uniqueness of the program lies in its multidisciplinary approach, which ensures that participants gain a broad understanding of not only how their own organizations should act during emergency events, but also how others should respond and how they can work together to reach better results. This is in contrast to other programs in Israel, which offer a single discipline program only.

Program lecturers – who bring their own unique perspectives to the students – include TAU scholars and scientists from medicine, management, social sciences, social work, geography and communications, as well as Home Front Command officers, airport directors, paramedics, municipality representatives and businesspeople.

“TAU is affiliated with five major medical centers serving half of the nation, and the combination of our field experience and research knowledge ensures that students will leave with both practical and conceptual tools,” says Dr. Boaz Tadmor, academic coordinator. “The students conduct research and analyze case studies, drawing on lessons learned from past disaster events to improve future responses to similar situations.”

Course topics range from the geography of disaster, effective media communication and mental health care, to leadership skills and project management.
One of the first of its kind in the world, a new TAU graduate program for emergency preparedness is bringing together professionals ranging from school principals to security agents. The aim: to boost Israel’s overall ability to prepare for and respond to large-scale emergency and disaster situations.

**Broad variety of participants**

The program’s first 45 participants are a diverse group: police and fire chiefs, security services agents, engineers, physicians, nurses, paramedics, educators, social workers and representatives of the Prime Minister’s office, the Ministry of Health and other government offices. The program enables them to continue working as they study; lessons are held one-and-a-half days per week. Students will leave with a Master’s in Health Science, specializing in Emergency and Disaster Management.

Noa Tamir-Hasdai, Head of Emergency Hospitalization and Training at the Israel Ministry of Health’s Emergency and Disaster Department, is a student in the program. Despite having worked in the field for several years, Noa believes the program can offer her something she’s never had a chance to do: gain a theoretical grounding that will enhance her years of field experience.

“Our office represents the front line of the national health system for all emergency events. The program is helping me complete my skills, broaden my horizons, and formulate a new way of thinking in preparing for emergency events,” Noa says.

Another student, Rachel Karmi, is a psychoanalyst and group therapist who works with at-risk youth in schools. “I feel the program’s having a ripple effect – it’s taught me, and now I’m passing on the knowledge to school principals, children, family and friends.”

**Future plans**

Program directors are currently in negotiations to launch an English language track that would enable professionals in the field from the United States and Europe to participate and learn from the extensive knowledge of their Israeli counterparts.

Also in the pipeline is a new Research Center for Emergency and Disaster Studies at TAU, which would serve as a hub of knowledge in the field in Israel, expand research activities, establish a global database of lessons learned from disaster events, and generate effective countermeasures for coping with disaster events and their aftermath in Israel and around the world.

The program is run under the direction of Prof. Shuki Shemer, Director-General of Maccabi Healthcare Services, former Director-General of the Ministry of Health and former IDF Surgeon General; and Dr. Kobi Peleg, director of Israel’s National Center for Trauma and Emergency Medicine Research at the TAU-affiliated Gertner Institute, and director of the National Trauma Registry. Academic coordinators are Dr. Boaz Tadmor MD, CEO of Beilinson Hospital at the Rabin Medical Center and former Commander of the Medical Division of the IDF Home Front Command; and Zohar Rubinstein, Chief Mental Health officer (res.) at the IDF Home Front Command and a lecturer at TAU’s Bob Shapell School of Social Work.
Vatican Learned of Auschwitz Sooner Than It Admits

Pope Pius XII, who was the Vatican Pontiff during World War II, has come under criticism for decades for not doing enough to save Jews from the Holocaust.

Now, Prof. Dina Porat, a Holocaust scholar and Head of TAU’s Chaim Rosenberg School of Jewish Studies, has uncovered evidence from a private archive in Israel that Angelo Guiseppe Roncalli – a papal delegate who later became Pope John XXIII – passed information revealing that the major killing site of European Jews was at Auschwitz onto Pope Pius XII on June 25, 1944, rather than in October 1944, the date the Vatican acknowledges receiving it.

According to Porat, Roncalli learned about the killings at Auschwitz from Chaim Barlas, head of the Yishuv rescue delegation stationed in Istanbul at the time. Porat,

Archaeological Dig a Wellspring of Mystery

TAU-led excavations near Jerusalem have uncovered a sophisticated, complex and as yet unexplained ancient water system that has been described by experts as “unparalleled in the history of the Land of Israel.”

The water system, which is cut deep into the rock and dates from the end of the First Temple Period (7th century BCE) to the Persian period (5th to 4th centuries BCE), includes large underground water reservoirs, tunnels and canals that transported water between the
who recently gained access to the Barlas private archive, found that Barlas, whose mission was to save Jews in Europe, himself became aware of the systematic extermination of Jews at Auschwitz through a set of documents known as the “Auschwitz Protocols” – a 30-page testimonial compiled by two Jewish inmates who escaped from the camp. The report made it clear that the purpose of the camp was the mass killing of Jews and others whom the Nazis considered undesirable. At the time, the Nazis were in the midst of killing 430,000 Jews from Hungary.

Although the killing of Jews was generally known, the fact that Auschwitz was the main extermination camp was not known until these protocols started circulating in the second half of June 1944. Barlas brought the gist of the documents to Roncalli on June 24th and Roncalli cabled it to the Vatican that same day. This contradicts the Vatican’s official version that it received the report only in October 1944, says Porat.

According to Porat, the correspondence reveals that Roncalli did his best to help rescue Jews and “gently criticized Pius XII for not answering his letters on behalf of the Jews, not helping and not raising his voice clearly against the killings,” says Porat.

All of Roncalli’s correspondence with his church superiors has been published in the Vatican volumes of documents relating to the war period, says Porat, but the part that could clarify when he distributed the protocols to Rome has not yet been made available to scholars.
The Mother of All Wheat

The discovery of an ancient species of wheat near the Negev desert could have implications for raising grains on arid lands, finds a TAU study.

One hundred years after its discovery in northern Israel created a botanical sensation, an ancient strain of wheat, known as “the mother of wheat,” has been sighted by TAU researchers near the Negev desert in southern Israel. This is the first time that the wild wheat species has been found so close to barren land.

The finding, by Drs. Eitan Millet and Jacob Manisterski of TAU’s Institute for Cereal Crops Improvement, has wide implications for the breeding of grains suited to arid lands and could help increase the yields of wheat – a staple food – in developing countries.

The wild strain, known as emmer wheat, is the closest ancestor of most cultivated wheat strains in the world. It has been domesticated in the Land of Israel for some 10,000 years and has been unearthed at archaeological excavations both in Israel and Egypt.

Live emmer wheat was first detected in Israel’s fertile north in 1906. Understanding its genetic composition led to improved strains of cultivated wheat. The TAU discovery will encourage further ecological and scientific investigation and could lead to more drought-tolerant wheat.

The study was conducted in cooperation with scientists at the Weizmann Institute of Science and Ben-Gurion University of the Negev. TAU maintains the only gene bank of wild cereals in the world and makes the samples available to international research institutions and agricultural breeding programs.

Technology Transfer: Getting Real

TAU applied research is behind three successful commercial ventures being brought to the marketplace. Dr. Yehuda Niv, CEO of Ramot, TAU’s commercial and licensing arm, says: “Royalties from these deals will be used to support basic and applied research at the university.”

First all-TAU drug developed

A new treatment for dry eye syndrome invented at TAU is now being sold by Italian drug company Tubilux Pharma under the brand name Lipimix™. The drug was developed through a licensing agreement between Ramot and the Italian drug company. The treatment, which was seven years in the making, is based on the research of Prof. Naphtali Savion and Dr. Arieh Solomon of the Sackler Faculty of Medicine’s Goldschleger Eye Institute. The drug brings relief to people suffering from dry eyes, corneal damage from contact lenses, irritants, burns and certain medical conditions.
What could be worse than getting hit by an asteroid? Getting hit by a double asteroid! Now, a TAU student has discovered that a larger number of asteroids than previously believed are double, or “binary” asteroids moving in pairs. The student, David Polishook of TAU’s Raymond and Beverly Sackler School of Physics and Astronomy, presented his findings to a NASA workshop on near-earth object detection prior to NASA’s submission of the study to the US Congress.

The binary asteroids Polishook detected are characterized by one large mass several kilometers in diameter with a second, smaller asteroid circling the primary mass like a moon. This information, and the fact that there are so many binary asteroids, is particularly relevant to NASA if they will need one day to destroy, disrupt or push any object that is on a collision course with Earth.

“If NASA would want to explode both parts of a binary asteroid, they would need to put a bomb between the two parts and consider the objects’ density and size to know exactly the effect one asteroid explosion would have on its partner,” says Dr. Noah Brosch, Polishook’s academic supervisor.

TAU’s Florence and George S. Wise Observatory is the one of the few centers in the world equipped with a special telescope devoted to asteroid research. The university also runs a national information center on near-earth objects and comets that are liable to cause the planet harm that is supported by the Israel Space Agency and the Israel Ministry of Science and Technology.

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**Drug for Alzheimer’s disease**

Technology developed at TAU is behind the recent $300 million license agreement between UK drugs giant Amgen and Epix Pharmaceuticals, as well as the $1.2 billion collaboration between Glaxo-SmithKline and Epix. The technology, which was developed at TAU by Dr. Oren Becker, Prof. Zvi Naor of the Wise Faculty of Life Sciences, and Drs. Sharon Shacham and Maya Topf, facilitates the discovery and development of drugs for treating a number of diseases such as Alzheimer’s.

**Better flash memory**

The recent merger of Israeli company Msystems with US company SanDisk, a transaction valued at $1.5 billion, was partly based on the “x4” technology licensed to Msystems by TAU. The technology, which increases the capacity of flash type memory chips used in mobile phones, digital cameras, MP3 players and palm pilots, was developed by Prof. Simon Litsyn of TAU’s Fleischman Faculty of Engineering. It is anticipated that the patented know-how will be embedded in a wide range of SanDisk products.
Raising Journalistic Standards

TAU’s new school of communication is Israel’s largest dedicated framework for journalism and media studies.

“The media in Israel is shaping the political reality more than ever before. This situation calls for a new professional outlook and the development of a new code of ethics for journalists,” believes Prof. Yoram Peri, Head of TAU’s new Caesarea Rothschild School of Communication.

Greater professionalism is one of the goals of the Caesarea Rothschild School, which has launched Israel’s first academic study program in journalism, and is coordinating all communication oriented teaching and research on campus. The program combines journalism accreditation with a bachelor’s degree in communication. “Students receive practical training in journalism while gaining broader academic knowledge in the social sciences, politics and other disciplines,” says Peri, who also heads the Chaim Herzog Institute for Media, Society and Politics that is being incorporated into the school.

“The school will transform TAU into Israel’s leading center for the education of journalists and communication professionals in general and set new standards for the media.”

New graduate programs

Journalism teaching and research is just one field of the new school. A master’s degree in political communication in cooperation with the Department of Political Science was launched this year. In the future the school will offer a wide range of new advanced study and research programs including a master’s degree in media management, economics and policy aimed at industry managers; an interdisciplinary research program in digital culture; and a program for marketing social campaigns and issues. Research grants for graduate students will also receive a boost through the school.

Operating within the framework of the school are the new Moshe Teomim Chair in Communications, devoted to the research of the social responsibility of the media; the Netvision Institute for Internet Research; the Andrea and Charles Bronfman Institute for Media of the Jewish People; and other media-related programs on campus.

The school receives additional support from the Bertelsmann Foundation and other donors.

Perspectives on String Theory

Nobel laureate in physics, Prof. David J. Gross, an expert in string theory, was a guest lecturer at a workshop in the field held by TAU’s Raymond and Beverly Sackler School of Physics and Astronomy. Some 20 leading experts from the US and Europe participated in the workshop, which was held to celebrate the 60th birthday of TAU Pro-Rector Shimon Yankielowicz, Dr. Teodor Jack and Dorothea Krauthamer Professor of Physics. Lectures were delivered by prominent young Israeli researchers including Prof. Nissan Itzhaki of TAU. String theory synthesizes quantum mechanics and Einstein’s General Theory of Relativity in an attempt to understand the most fundamental interactions in nature. The workshop was organized by TAU professors Marek Karliner and Cobi Sonnenschein with support from TAU, the Bat Sheva Foundation, Mortimer and Raymond Sackler Institute of Advanced Studies, Mark Rich Foundation, Israel Science Foundation and the Hebrew University of Jerusalem.
**Costs of Global Warming for Israel**

An eleventh-hour plan to curb the effects of global warming on the Earth was unveiled for the first time at the conference, “Global Warming: Is Our Future in Peril?” organized by TAU’s Porter School of Environmental Studies. The controversial plan, brainchild of Prof. Paul Crutzen of the Max Planck Institute in Germany, Nobel laureate in chemistry and the conference keynote speaker, calls for cooling the Earth by seeding its upper atmosphere with a massive amount of carbon dioxide.

According to Crutzen, who is a member of the European Commission’s advisory group on “Global Change, Climate and Biodiversity,” and a TAU honorary doctor, injecting sulfur into the second atmospheric layer closest to Earth would reflect more sunlight back to space and offset greenhouse warming.

The Porter School of Environmental Studies, founded by TAU Governor Dame Shirley Porter and her late husband, Sir Leslie Porter, former Chancellor of the university, is the first and only academic school in Israel dedicated to multidisciplinary environmental research and teaching.

They come from all corners of America bringing with them university degrees, published manuscripts, suitcases of poems, and scribblings of novels in the works. They aren’t running from religious persecution nor do they seek fame or fortune. They are American-Israeli writers, and they have chosen to make aliya and live and work in Israel. For decades now they have written about Israeli Jewry for English readers around the world. And for the first time, TAU’s Department of English and American Studies brought these writers and scholars together under one roof for a one-day conference, “American Aliyah in Literature and Research.”

Participants included accomplished American-Israeli writers and poets, members of writers’ associations and journals in Israel, TAU academic faculty, and scholars from other Israeli universities and colleges.

**TAU HOLDS 1ST CONFERENCE ON AMERICAN ALIYAH LITERATURE**

American-Israelis have an important set of boots to fill, believes TAU senior lecturer Karen Alkalay-Gut, a poet, translator and performer who has lived in Israel since 1972. They have a task to translate the Israeli experience to a language the world can understand. And unlike other immigrant groups from places such as the former Soviet Union or South America, “only American Jews came here because they wanted to and because they had that choice,” notes Alkalay-Gut. “The person who works in English can return to his country. That makes every day a reaffirmation to live here.”

Funding for the conference came from the Department of English and American Studies and Entin Faculty of Humanities at TAU, and the Israel Association of Writers in English. The Fred Simmons Fund also sponsored a number of sessions.
New Joint Northwestern-TAU Degree in Law

The Buchmann Faculty of Law has launched a new Executive LLM Program in Public and International Law that is the first in Israel to award two degrees – one from Northwestern University Law School, Chicago, and one from TAU. The degree is a joint program of TAU and Northwestern Law School, rated among the top ten law schools in the world.

The program targets legal professionals who already hold senior positions as judges, public defenders and prosecutors, as well as members of government agencies, non-governmental organizations (NGOs) and private law firms dealing with globalization and international constitutional law.

The program is being offered within the framework of an ongoing cooperation agreement between TAU and Northwestern University. “Northwestern’s joining with TAU is an expression of confidence in TAU’s standing as the top law school in Israel and one of the top twenty in the world,” says TAU law Dean Prof. Hanoch Dagan.

According to Prof. Dagan, the program advances TAU’s strategy to “upgrade the quality of legal education in Israel and to train professionals who are capable of dealing with the increasing complexity and globalization of the legal field.” The program will also help prevent brain drain by providing top quality graduate legal education in Israel.

Students in the program, which opened in February 2007 with 40 participants, will attend classes at TAU and spend a four-week condensed summer semester at Northwestern that will expose them to the US legal system and constitutional law. The program will also feature courses taught by leading international lecturers, says Prof. Ron Harris, academic director of the program at TAU. Co-director of the program at Northwestern is Prof. Ronen Avraham.

The Buchmann Faculty is providing assistance to students through scholarships funded by an outside concern that cover a substantial amount of the tuition fees. Prof. Dagan: “We recognize that candidates from the public sector need help in this area and we are also in contact with top officials in the public sector about the possibility of their institutions sponsoring applicants for the program,” says Dagan.

TAU also runs a joint LLM program in commercial law in cooperation with the University of California at Berkeley.

TAU HOSTS STEPHEN HAWKING

Theoretical physicist and best-selling author Prof. Stephen Hawking of Cambridge University was guest of honor at an event on “Challenges and New Horizons in Physics” hosted by TAU’s Raymond and Beverly Sackler Faculty of Exact Sciences. The visit was part of an eight-day tour of Israel organized by the British Council that included a meeting with Prime Minister Ehud Olmert. Hawking said he came to Israel because “it has always been a center of excellence in science.”

Along with a briefing on TAU physics research, Hawking also heard about the dedicated chair at the university for the research of ALS, also known as Lou Gehrig’s disease, which has paralyzed him since age 21. TAU also has Israel’s leading research group in neurodegenerative diseases.

Egyptian and Israelis make music together

Egyptian composer and conductor Ahmed El Saedi (pictured) visited TAU’s Buchmann-Mehta School of Music, where he met with senior faculty and learned about the school’s teaching programs. El Saedi, a former principal conductor and artistic director of the Cairo Symphony Orchestra, attended a performance of the school’s symphony orchestra featuring works written and arranged by students in the composition and conducting study track.
When Zubin Mehta first heard 19-year-old Adriano Costa Chaves play the contrabass in a youth orchestra in a poor suburb of Sao Paulo, Brazil, he liked his playing so much that he offered the youngster a scholarship to study music at Tel Aviv University. Mehta, the four-decades-long artistic director of the Israel Philharmonic Orchestra (IPO), serves as Honorary President of TAU’s Buchmann-Mehta School of Music which is run in cooperation with the IPO.

Now, two years later, Adriano is studying at TAU with noted contrabass musician Peter Mark, performing in the Buchmann-Mehta School Orchestra and the IPO Youth Orchestra, and studying Hebrew intensively. His tuition and living fees are covered by scholarships financed by members of the Sao Paulo Jewish community and the Buchmann-Mehta School.

Adriano, one of three children, picked up a contrabass for the first time at age 15 when a cousin asked him to substitute for him in their local youth orchestra. He became enchanted with the instrument’s rich and deep tone and began studying with a local teacher.

When Mehta listened to his playing, recalls Adriano, the conductor wanted to take him straight back with him to Israel that night, but there were practical things to think about like telling his parents and the fact that he knew no Hebrew or English. “I told Maestro Mehta he would have to wait patiently until I was ready,” says Adriano. At the time Adriano knew little about Israel. His parents were in shock and didn’t believe the plan would work. “In Brazil many promises are made, but most are not kept,” says Adriano.

In the interim period he learned Hebrew at the local Jewish community center.

At TAU, Adriano is enrolled only for the current academic year, but hopes to go on to do his bachelor’s degree. “I’m being exposed to the best musicians and the highest standards of teaching here,” he says.

What does the contrabass mean to him? “The contrabass is a means of expression for everything good and bad that I experience in life,” says Adriano. “That is why I take it so seriously.”

The Buchmann-Mehta School was established in 2005 with a mandate to become one of the premier musical training institutions in the world, with a special emphasis on high-level orchestral performance. Its competitive programs attract students from the USA, Eastern and Western Europe, China and South Africa.

To Russia with Love

A Russian language teacher from TAU was the sole representative of Israel at the Kremlin celebrations of Russia’s version of Independence Day. Dr. Yuri Zlatopolsky of TAU’s Division of Foreign Languages, Entin Faculty of Humanities, attended the official dinner in Moscow for Russian National Unity Day presided over by Russian President Vladimir Putin.

Zlatopolsky is the recipient of the Pushkin Medal, a top Russian government honor, for his contribution to teaching Russian language and literature in Israel.

Putin met with Zlatopolsky and expressed interest in forging a cooperation agreement between Tel Aviv University and St. Petersburg State University in the field of Russian language teaching.
New Prize Rewards High Output

New prizes recognizing the competitive standing of TAU researchers within the university have been awarded for the first time to three TAU scientists. The prizes were established by Vice President of Research and Development Hagit Messer-Yaron to reward researchers who have submitted an unusually high number of research proposals, received substantial research funding from outside sources or filed for numerous patents.

“The prize sends a dual message,” says Prof. Messer-Yaron. “Within the institution, it signals that outstanding work is recognized and valued. For outsiders, it points to excellence in specific research fields.”

The prizes for 2006 were awarded to Prof. Ehud Gazit, Life Sciences, and Dr. Eyal Ben-Dor, Humanities, for their large number of research proposals and grants, and to Prof. Yosi Shacham-Diamand, Engineering, for success in applied research and outstanding scientific leadership in Israel and abroad.

TAU STUDENT WINS TOP US AWARD

A TAU master’s student in biomedical engineering is the only student in Israel and one of only 27 worldwide to win the new Fulbright Science and Technology Award established by US Under-Secretary of State for Public Diplomacy and Public Affairs Karen Hughes.

Limor Bursztyn, 25, won the award for her outstanding academic record and for the development of a mathematical model for describing the function of the uterus at the cellular level – a study that could help advance the diagnosis and treatment of infertility. Her research is conducted under the supervision of Prof. David Elad of TAU’s Fleischman Faculty of Engineering. The award will support her PhD studies at a top American university on methods of improving understanding of neurons’ processing of cognitive and sensory information.

The award was established by Hughes to provide “top-level students in science and technology with the US government’s most prestigious and valuable scholarship.” Twenty-seven students from different countries were chosen out of a total of 130 candidates.

Sun Rises over TAU Scholar

The Order of the Rising Sun, a Japanese medal of honor awarded by the Emperor of Japan, was conferred upon TAU’s Prof. Jacob Raz, a scholar in East Asian studies.

Raz was presented the award for his promotion of Japanese culture and studies in Israel and contribution to strengthening ties between the two countries. Raz, who was Chairperson of TAU’s Department of East Asian Studies, Entin Faculty of Humanities, is an expert on Japanese culture and Zen Buddhism, and has penned numerous books, including his latest novel, My Brother the Yakuza, a personal foray into the Japanese mafia. He has also translated numerous Japanese works of poetry and literature into Hebrew.

The medal was presented by Japanese Ambassador Yoshinori Katori at a ceremony held at his official residence in Tel Aviv.
Winner x 4
Yaron Kohlberg, 23, a piano student at TAU’s Buchmann-Mehta School of Music, won first prize in the recent Parnassus Piano Competition in Monterrey, Mexico. Kohlberg, who studies under TAU professor Arie Vardi, won his first competition at age 14 at the Shostakovitch for Youth Competition in Hanover, Germany. Since then he has won first prize in the Jerusalem Rubin Academy of Music Piano Competition and second prize at the International Grieg Piano Competition in Oslo, Norway.

Treating Domestic Violence
An approach developed at TAU and adopted by the Welfare Ministry tries to help violent men by stressing the father-child relationship

Getting violent men to acknowledge that, when they abuse their spouses, they are also causing severe damage to their fathering and to their children is at the core of a new therapeutic approach developed by Dr. Einat Peled, a senior lecturer at the Bob Shapell School of Social Work.

“My doctoral research on children exposed to domestic violence brought home to me the necessity of spotlighting the violent man’s paternal experience, and of developing a knowledge base on this issue that up to then had not existed,” Peled says.

“The children are unable to rehabilitate their family relationships without dealing with their link to the father. Our innovation is an understanding of the need to address the father-child relationship as part of the overall therapeutic approach to domestic violence.”

Peled, together with Guy Perl, an experienced therapist in the field of domestic violence, developed a group therapy program aimed at strengthening violent fathers’ parental functioning and, concomitantly, an intervention program for abused mothers. The project was created as a partnership between the Shapell School; Ashalim – the Association for Development and Planning of Services for Children and Youth at Risk and Their Families; and the Welfare Ministry.

The men’s program emphasizes their responsibility as fathers and aims to strengthen their parental functioning; the women’s program stresses personal development as mothers. Both programs are described in two new books by Peled and Perl.

According to Peled, getting abusive men to change requires long-term work. “They find it hard to admit that their violent behavior has harmed their children and their paternal role, and their ability to display empathy toward their children is often limited, at least at first.”

The researchers’ new approach has generated controversy due to the empathy displayed toward the violent men during the therapeutic process. “We proceed from the assumption that they are both violent and vulnerable. We believe that if one wishes to address violent men’s paternal experience, one must strike a middle path between criticism and an empathetic, inclusive and warm approach,” Peled says.

MAKING PEACE WORK AT HIGH SCHOOL

“Before one resolves conflict, one needs to understand its source,” says Prof. Mordechai Tamarkin, Head of TAU’s Tami Steinmetz Center for Peace Research. The center, which issues a well-known monthly peace survey, is now operating a new conflict resolution program for high school pupils, an after-school series of workshops and games that gives Jewish and Muslim teenagers the language, ideas and tools to possibly become the world’s next generation of peacemakers.

For one semester, the pupils attend lectures, seminars and discussions and use a computer-simulated role-playing game to put into practice what they learn in class. The software allows them to take the role of real leaders in world conflicts, such as the Northern Ireland and Arab-Israeli conflicts. In the online game, as an example, a student playing Condoleezza Rice has to decide how she would negotiate with another classmate posing as Iranian President Mahmoud Ahmadinejad.

“We believe these teenagers can see things from a fresher angle and perhaps make the future better than the past,” says program coordinator Eyal Schachter, a lawyer and teacher specializing in mediation.

The program was initiated by Prof. Tamar Hermann, former director of the Steinmetz Center, who believed that exposing youth to alternative ways of thinking would enable them to find solutions to conflicts on the individual, societal, national and international levels.

The Steinmetz Center is supported by Daniela and Daniel Steinmetz, who founded it in memory of their daughter Tami. For the Peace Index, go to www.tau.ac.il/peace/
Laureate of the 1991 Israel Prize, former Dean of TAU’s Buchmann Faculty of Law and a specialist in civil law, Prof. (emer.) Daniel Friedmann has been appointed Israel’s Minister of Justice, replacing Haim Ramon. Prime Minister Ehud Olmert described Prof. Friedmann’s appointment as one that would “guarantee and safeguard the human rights of Israeli residents.”

He is the second TAU professor to serve as minister in the current government, following Prof. Yael (Yuli) Tamir’s appointment as Education Minister. Prof. Friedmann is a member of the Israel Academy of Sciences and Humanities, the American Law Institute and the International Academy of Comparative Law. He has been a visiting professor at Harvard University Law School, the University of Pennsylvania Law School, Queen Mary College at the University of London, and Fordham University Law School.

Prof. Friedmann is the recipient of the Zeltner Prize, Sussman Prize and Minkoff Prize. He was among the founders of the law school of Israel’s College of Management and served as its first dean.

Three TAU Figures Receive 2007 Israel Prizes

Dov Lautman – Israel Prize for Life’s Work
Founder, chairman and CEO of Delta Galil Industries, and Chairman of TAU’s Executive Council, Dov Lautman was recognized for his dedicated public service. He served as President of the Manufacturers Association of Israel and as Prime Minister Yitzhak Rabin’s Special Emissary for Economic Development, among other top national positions. His many social initiatives include working to close Israel’s ever-growing gap between the rich and poor, and promoting peace and coexistence between Arabs and Israelis. Lautman was also awarded an OBE by the British government in recognition of his efforts in advancing the relationship between Israel and Britain and his contribution to the peace process.

Prof. Elisha Efrat – Israel Prize for Geography Research
One of the founders of TAU’s Department of Geography and the Human Environment, Prof. Efrat was cited for his outstanding lifetime contribution in the field of human geography which includes conducting research, publishing scientific papers and teaching. He is a pioneer of applied geography in Israel and of research into the planning and development of cities and towns, transportation systems and open spaces.

Prof. Zvi Hashin – Israel Prize for Engineering Research
A world expert in materials engineering, Prof. Hashin was recognized for helping to lay the scientific groundwork for the complex materials theory that has since become an important branch of engineering science. The models developed by Prof. Hashin are still fundamental to the development and design of innovative materials. He is one of the founders of TAU’s Fleischman Faculty of Engineering, and founding chairman of the Department of Solid Mechanics, Materials and Systems.

Prof. Yakir Aharonov, Physics, is the recipient of the EMET Prize in Exact Sciences, and Prof. Ariel Rubinstein, incumbent of the Jack Salzberg Chair in Economic Theory, is the recipient of the EMET Prize in Social Sciences. The EMET Prize given annually by the Israeli Prime Minister’s office for excellence in academic and professional achievements.

Prof. Shulamit Volkov, Humanities, and Prof. Gideon Dagan, Engineering, have been elected members of the Israel Academy of Sciences and Humanities, bringing the total number of TAU faculty members in the academy to 18.
Appointments: Head of the National Council for Economics established by Israeli Prime Minister Ehud Olmert – Prof. Manuel Trajtenberg, former Head of the Berglas School of Economics • Head of the Porter School for Environmental Studies – Prof. Yehuda Benayahu, Life Sciences • Head of the Joan and Jaime Constantiner School of Education – Prof. Yuval Dror, Humanities • Head of the School of Computer Science – Prof. Amos Fiat, Exact Sciences • Head of the Raymond and Beverly Sackler School of Physics and Astronomy – Prof. Yaron Oz, incumbent of the Raymond and Beverly Sackler Career Development Chair, Exact Sciences • Head of the Caesarea Rothschild School of Communication – Prof. Yoram Peri, Head of the Chaim Herzog Institute for Media, Politics and Society • Head of the School of Mechanical Engineering – Prof. Lev Shemer, former Dean of Absorption • Head of the Maurice and Gabriela Goldschleger School of Dental Medicine – Prof. Haim Tal, incumbent of the Gerald A. Niznick Chair in Implant Dentistry • Head of the School of Electrical Engineering – Prof. Anthony J. Weiss, Engineering • Head of the Berglas School of Economics – Prof. Yoram Weiss, incumbent of the Daniel and Grace Ross Chair in Labor Economics, Social Sciences • Director of the Adams Super-Center for Brain Research – Prof. Illana Gozes, incumbent of the Lily and Avraham Gildor Chair for the Investigation of Growth Factors, Medicine • Director of the newly established Center for Nanostructuring – Prof. Ori Cheshnovsky, Exact Sciences • Director of the Goldstein Goren Diaspora Research Center – Dr. Simcha Goldin, Humanities • Head of the Claire and Améée Maratier Institute for the Study of Blindness and Visual Disorders – Prof. Efrat Kessler, Medicine • Head of the Laura Schwarz-Kipp Institute of Biotechnology – Prof. Daniel Segal, Life Sciences • Head of the Raymond and Beverly Sackler Institute of Solid State Physics and incumbent of the Herch Moyses Nussenzweig Chair in Statistical Physics – Prof. David Andelman, Exact Sciences • Incumbent of the Chair for New Economy Information Systems – Prof. Shoshana Anily, Management • Incumbent of the Chair in the History and Culture of the Jews of Salonika and Greece – Prof. Benjamin Arbel, Humanities • Incumbent of the Lea and Arieh Pickel Chair for Pediatric Research – Prof. Shai Ashkenazi, Medicine • Incumbent of the Chair for the Study of Chemistry – Prof. Aviv Amirav, Exact Sciences • Incumbent of the Diane and Arthur B. 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Honors: 2006 Luke Howard Award and Outstanding Scientist of the International Association for Urban Climate, Prof Arich Bitan, Humanities • 2006 Peace Scholar Award of the Peace and Justice Studies Association, Prof. Daniel Bar-Tal, School of Education • 2007 Krill Prize for Excellence in Scientific Research, Dr. Roded Sharan, Exact Sciences • Research Prize of the Jacqueline Seroussi Memorial Foundation for Cancer Research, Prof. Arnon Nagler, Medicine
The Occult Tradition: From the Renaissance to the Present Day

This comprehensive work traces the history of the occult tradition from its beginnings in Plato’s era, flowering in the European Renaissance and up to the New Age phenomenon of the present day. The book surveys a vast and fascinating body of beliefs that has had a profound influence on Western civilization. Prof. David S. Katz is incumbent of the Abraham Horodisch Chair for the History of Books and Chairperson of the Department of History, Entin Faculty of Humanities.

War in Human Civilization

This interdisciplinary study, which was named one of the best books of 2006 by the Times Literary Supplement, examines the interrelationship of war with the major developments in world history, such as the emergence of agriculture, the rise of the state, the birth of civilization and the advance of modernity and democracy. Prof. Azar Gat is incumbent of the Ezer Weizman Chair in National Security Studies and Head of the Executive Master’s Program in Diplomacy and Security, Gordon Faculty of Social Sciences.

Stereotypes and Prejudice in Conflict: Representations of Arabs in Israeli Jewish Society

Winner of the 2006 Alexander George Book Award of the International Society of Political Psychology, this book examines the negative stereotyping of Arabs in Israeli-Jewish society that has evolved in the context of the Arab-Israeli conflict. Prof. Daniel Bar-Tal is a member of the Constantiner School of Education, and Prof. Yona Teichman, the Department of Psychology.

The Modern Art of Dying: A History of Euthanasia in the United States

How we die reveals much about how we live. In this book, which won the 2006 Distinguished Book Award in Sociology of Law of the American Sociological Association, Shai Lavi traces the history and legal practice of euthanasia in the United States and sheds light on current ethical debates relating to modern ways of dying. Dr. Shai Lavi is director of the Prof. Dr. Raphael Taubenschlag Institute of Criminal Law at the Buchmann Faculty of Law.

Law and Identity in Mandate Palestine

This book provides a new approach to both the legal history of Palestine and colonial societies in general. It shows how, in Mandate Palestine, law and identity interacted in a complex colonial society in which British rulers and Jewish and Arab subjects lived together. Prof. Assaf Likhovski is a member of the Buchmann Faculty of Law.

A Violent World: TV Images of Middle Eastern Terror and War

A Violent World provides an in-depth analysis of how three media outlets – global CNN, the Israel Broadcasting Authority and Palestinian PATV – use pictures to frame the context of terror events and violence in the Middle East. Prof. Nitzan Ben-Shaul is a member of the Katz Faculty of Arts.
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