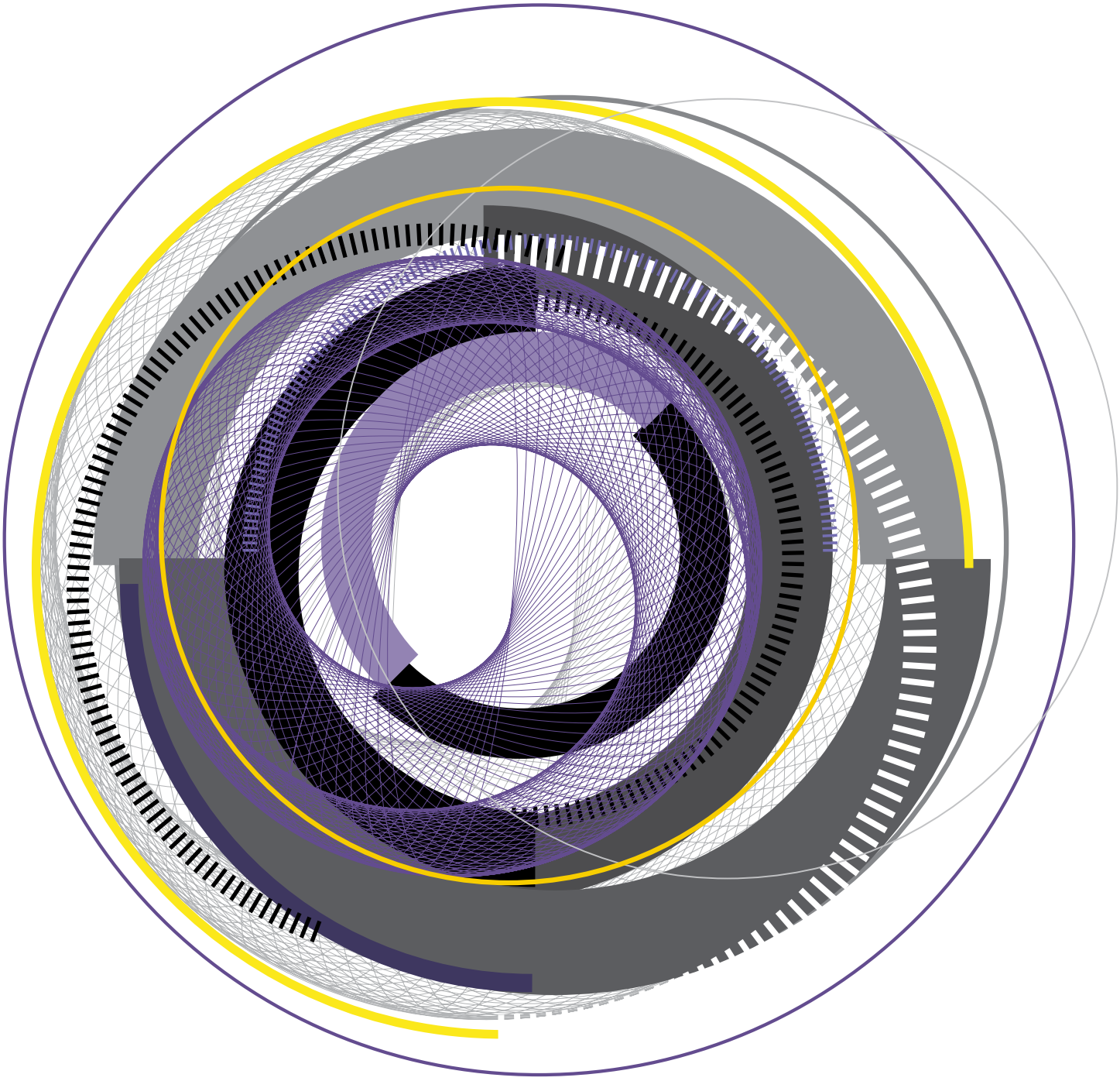
Tel Aviv University
2010 Annual Report

Bringing Home Young Faculty

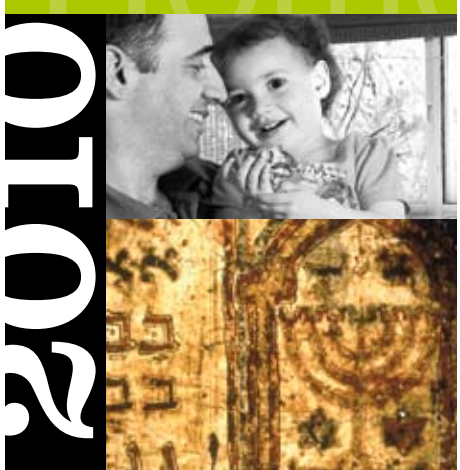
Discovery Emerging



Coming Full Circle:

Returning Scientists Bring Their Creative Energy Back to Israel

They come with hard-earned expertise, unique new research directions, enthusiasm and simple joy to return to their homeland with their families. They are Tel Aviv University's newest faculty members – outstanding young Israeli scientists and scholars who have been recruited from the world's most prestigious research institutions. Now, TAU is determined to bring home more young Israeli faculty, ensure that Israeli discoveries remain Israeli and increase Tel Aviv University's contribution to the state's vibrant knowledge economy.



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President's Message

Pictured: New TAU President Joseph Klafter with TAU student leaders.

Dear friends,

Though I've been on the job for only half a year, I feel touched and motivated by the commitment I've encountered at every turn – of our researchers, students, administrative staff and many supporters. This vibrant TAU community is the source of the University's strength. It is the reason why a recent newspaper survey found that TAU remains the preferred place of study of Israel's young people and the country's most prestigious institution of higher education. Now the question is: What do we have to do to raise TAU's standing even higher?
I view the following four steps as fundamental:

1. We need to build international centers of excellence in our strongest areas. These will pull in, like magnets, the finest scientists and students; transform TAU into a "must-visit" university for distinguished visitors from around the world; and enable the University to win the largest competitive research grants. These centers will require laboratory facilities with the most advanced equipment in science today.
2. We need to cultivate interdisciplinary teamwork – an area in which TAU already has a distinct edge. We can pull down barriers between disciplines and unleash the imagination even further through new, dedicated interdisciplinary frameworks such as graduate schools, teaching and research programs, scholarship funds and facilities.
3. We need to create the conditions to bring home the very best young Israeli researchers working abroad, especially those with an interdisciplinary orientation. The costs are substantial, however. Just for one new recruit in the sciences (and we're aiming for 10-15 each year), we need to build and equip a new lab, hire technicians and provide fellowships for the students in the research team.
4. We need to remain responsive to changing realities in academia and society, including opening specialized teaching programs to fulfill local and international demand. Being responsive also means listening to students who haven't always been heard and giving them immediate help.

These steps, though straightforward, won't be easy to implement against the background of global recession and the continuing financial crisis of Israeli higher education. I'd like to give heartfelt thanks to our Tel Aviv University faculty members for helping out in this regard by taking a voluntary pay cut. Likewise, I'm grateful to our many TAU supporters who have stood by us. I look at this generosity of spirit and feel confident we can succeed in our united goal: to increase TAU's contribution to science and scholarship, Israeli national development and world progress.

Joseph Klafter

Professor Joseph Klafter
President
Tel Aviv University

Dr. Eran Socher
High-Speed Communications

Dr. Yechiel Elkabetz
Stem Cells

Dr. Dan Peer
Drug Delivery

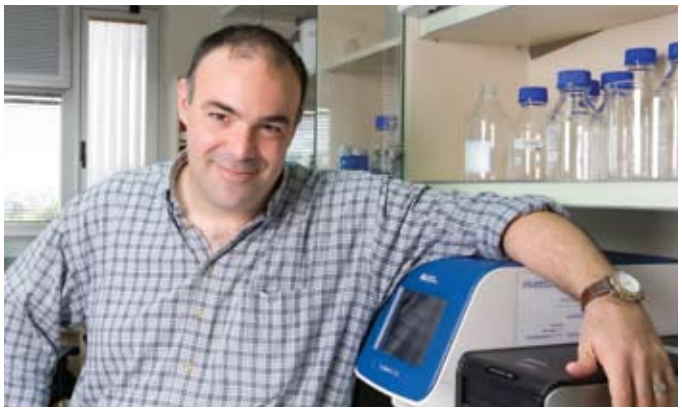
New Young Faculty at TAU:

Individual Excellence, Collective Strength

Shaping Interdisciplinary Give-and-Take

Bringing Home Young Faculty

Dr. Dan Peer
Drug Delivery



Field combines: Immunology, Cell Biology, Genetics, Nanotechnology and Pharmacology
Recruited from: Harvard
TAU alumnus: BSc, MSc & PhD
Army service: IDF Medical School – Instructor of medics
Family status: Married+2

Soon to be launched within the human body: Drug-delivering nano-submarines

Dan Peer of the George S. Wise Faculty of Life Sciences has developed a nano-sized "bio-submarine" that can travel within the body, find just the right cell, and deliver a unique drug – RNAi. This naturally occurring biological material can be synthesized to hone in on specific cells, or even on specified genes within cells. It then reprograms the target cell to stop producing faulty proteins that cause disease. In the case of cancer cells, the drug prompts them to self-destruct while leaving surrounding cells unharmed. Expecting to launch human clinical trials within three years, Dan foresees that this technology will provide dramatically improved treatment initially for blood and other types of cancers, and for inflammatory bowel diseases. The research receives the generous support of the Lewis Trust, USA.

Dr. Tali Hatuka

Urban Regeneration

Field combines: Urban Planning, Architecture, Engineering, Economics, Sociology, Public Policy
Recruited from: MIT
Army service: Educational Corps
Distinctions: Fulbright Scholar and European Union Marie Curie Scholar
Family status: Married+1
Hobby: Etching

Research + action = A plan for re-visioning cities

Tali is bringing to Israel cutting-edge concepts in urban planning. "There's research," she explains, "and there are urban developers, but there's not a lot of interaction between them." Bridging the gap between the two, the new Laboratory for Contemporary Urban Design set up by Tali at the Lester and Sally Entin Faculty of Humanities has three main focuses of activity: cutting-edge research on the future development of cities; the provision of services and consultation to municipalities; and the development of a much-needed, and today non-existent, database of urban design and regeneration. "The lab has only been up and running a few months, and already we are collaborating with several municipalities," Tali reports. "We're providing an interdisciplinary framework for decision-making, and helping to solve problems such as the need to develop low density environments, to revitalize city centers, and to create low-income housing and communities in tune with 21st-century lifestyles.

Dr. Eran Socher

High-Speed Communications

Field combines: Physical Electronics, Electrical Engineering
Recruited from: UCLA
Army service: Air Force R&D
Family status: Married+2

New electrical circuits for miniaturized devices working at maximized speeds

With a million-dollar lab being built for him at the Iby and Aladar Fleischman Faculty of Engineering, Eran designs and constructs new kinds of electrical circuits using the very shortest waves available in wireless communication, working at very high radio frequencies. This could allow for unprecedented communication speeds of up to 100 times faster than today. The accompanying miniaturization of antennas would lead to far smaller devices at much reduced costs. Eran explains, "the technology could have numerous applications such as wireless high definition TV, fast movie downloads to mobile devices, and more affordable security systems for detection of concealed weapons, for example at airports." Looking into the future, he suggests that "devices could be so small and easy to use that even private individuals would be able to use them for detecting hazardous materials or diagnosing biological anomalies such as cancer cells."

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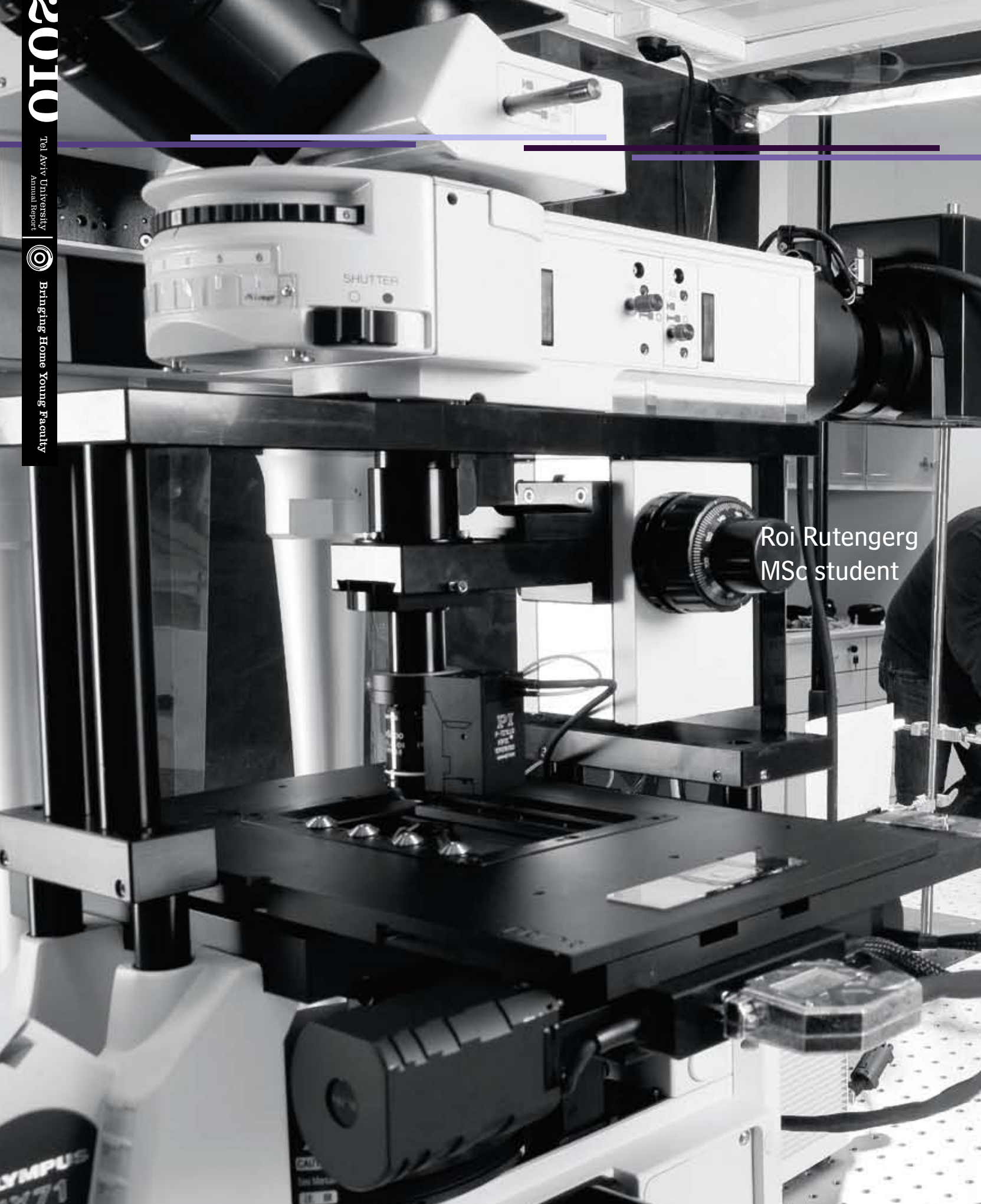


Roi Rutengerg
MSc student

Founding New Labs in Emerging Fields

Prof. Ronitt Rubinfeld

Information Technology

Field combines: Computer Science, Statistical Analysis
Recruited from: MIT
Family status: Married+2

Helping computers make sense out of masses of data

Faced with increasingly large quantities of data, our computers need tools for speeding up computation. At the Blavatnik School of Computer Science, Raymond and Beverly Sackler Faculty of Exact Sciences, Prof. Ronitt Rubinfeld has developed a technique, called "Smart Sampling," that extracts critical information from masses of data by analyzing only a very small fraction of the data. "This enables us to solve a wide range of problems," she says. "We can now pull out information that might otherwise take generations to collect and analyze. Applications are diverse, from detecting shopping trends to determining the rate of disease incidence."

Dr. Yael Roichman

Nano-structures

Field combines: Soft Condensed Matter Physics, Chemistry, Biology, Nanotechnology
Recruited from: NYU
Army service: Air Force
Family status: Married+3
Hobbies: With three kids under 10, who has time?!

Using HOT new tweezers made of light beams

Yael is into a hot issue – literally. HOT stands for holographic optical tweezers that use a laser beam to entrap tiny particles, whether from glass, plastic, bacteria or live cells, and then rearrange them to create nano-structures. Pioneering the field in her new lab at the Raymond and Beverly Sackler School of Chemistry, Yael uses a confocal microscope to see the structure in 3D as it is being constructed; manipulates it with a computer-controlled hologram technique; and preserves the new nano-structure in a gel-type medium. Where does this lead in the future? "To wholly new and complex materials for use in medicine and industry. To devices controlled by light rather than electricity that will be more energy efficient and precise," says Yael, who holds the Raymond and Beverly Sackler Career Development Chair.

Field combines: Cellular and Developmental Biology, Stem Cell Research and Cancer Research
Recruited from: Sloan-Kettering Institute for Cancer Research, NY
TAU alumnus: BSc, MSc, PhD
Army service: Artillery
Hobbies: Film and dance

Dr. Yechiel Elkabetz

Stem Cells

Capturing the moment of creation – from stem cell to nerve cell

"While studying cellular biology, I realized I wanted to do more than watch what happens inside an individual cell. I wanted to zoom out to the big picture and examine the process by which cells become the type of cells they are," says Yechiel Elkabetz of the Sackler Faculty of Medicine. Now, in his newly-built laboratory suite at TAU, Yechiel is studying human embryonic stem cells at the very moment that they begin to differentiate and turn into nerve cells – an exciting scientific first. "By understanding how the first nerve cells are born, Yechiel explains, "we can begin to manipulate the process and produce only the nerve cells we want. In the future we can harness stem cells for the understanding and treatment of brain diseases."

Field combines: Molecular Microbiology, Biotechnology, Medicine, Immunology, Infectious Diseases, Pharmacology
Recruited from: University of California at Berkeley
TAU alumna: BSc and MSc
Army service: Air Force
Family status: Married+1
Hobby: Bird-watching

Dr. Anat Herskovits

Bacterial Resistance

Screening genes, one by one, to discover how bacteria outwit us

How do bacteria resist the immune system and drugs? This is the question occupying Anat, who is unique in Israel in her study of Listeria bacteria. Listeria is an intercellular pathogen, such as those that cause TB, malaria and AIDS – diseases for which there is as yet no vaccine or cure. Such pathogens avoid detection by the immune system by hiding inside a human host cell. To discover how they do this, Anat is screening all the Listeria genes, one by one, at her George S. Wise Faculty of Life Sciences lab, and determining which ones are involved in evading the immune system and resisting antibiotic drugs. Identifying the specific genes involved brings science a step closer to preventing and fighting such pathogens.

"Keep the Oil Flowing"

In a farewell interview, Robert Goldberg, outgoing Chairman of the TAU Board of Governors, describes why he's passionate about young faculty recruitment

- **In your years as Chairman of the Board, what excited you the most about the University?**

  Visiting the brilliant young professors and PhDs doing research in their laboratories. I couldn't believe what I was seeing. What they were doing was clearly so important – not just for TAU but for Israel. That's why I took the job.

- **What do you think young faculty recruitment can accomplish?**

  What's happened in the last few years is that government funding to the universities has been cut, and faculty positions have been cut, and the remaining faculty, on average, have been getting older rather than younger. We have to bring in new blood to rejuvenate the University, and we also have to boost the numbers to get stronger.

- **How can the University's supporters help?**

  I'll speak for myself first. When I'm done with my job as Chairman, I'm not going to leave the University. I'll devote myself to raising funds for bringing back young scientists and professors to the University. I look forward to working closely with the Friends Associations in Israel and abroad on the recruitment campaign. I think we can do it.

- **Why should donors support what the Israeli government does not?**

  The fact is that the government is stepping up to the plate. Just recently it was announced that the state would earmark 450 million shekels – 120 million dollars – to bring back about 300 young researchers to Israel's universities.

  Getting this government funding will be competitive, though, because it's conditional on the universities raising matching funding. The government will give a third, the universities a third, and donors in Israel and the Diaspora a third. What a partnership this could be!

- **Why is helping bring back young Israeli faculty the best possible investment in TAU?**

  Today, donors don't want to write a check and not see where the money's going. But if you go to a philanthropist and tell him about a young Israeli at Harvard who wants to go back to Israel, and you say, "Here is her picture. Here is her bio. This is what she's doing and why it's important, and here's the amount of money she needs to do it," well, this is concrete. He may want to fund this.

- **What does TAU give to Israel?**

  The well-known New York Times columnist, Tom Friedman, wrote a couple of years back that the universities are Israel's oilfields. The R&D work being done at TAU and the other universities is not only a strategic asset, but is one of the reasons that the Israeli economy is doing better today than most others in the world. Much of Israeli high tech – which accounts for over 50 percent of the country's exports – comes out of the universities. The state-of-the-art technologies that ensure that the country can defend itself come out of the universities.

  But we have to keep the oil flowing. I see young faculty recruitment as our best chance of ensuring this.

- **What does TAU give the world?**

  I'd like to see it concentrate on renewable energy. Can you imagine if the solution to world dependence on fossil fuels were to come out of Israel? I'd find that very motivating.

- **Where would you like to see Tel Aviv University go now?**

  The University is going in the right direction. It's an outstanding institution. I'd like to see more international study programs and greater international impact. I'd like to see us climbing steadily in the rankings every year, and I know we can do it.

- **The world has changed and money has gotten tighter. How can the University continue to get donations and thrive?**

  All the universities have the same problem. We're in a world recession. Yet there are still millions of dollars being donated to important causes, and our challenge is to get out there and explain why TAU and its activity is worthy.

- **How can the University draw in the next generation of supporters? What will speak to them?**

  It's very simple and basic. TAU has to develop its alumni network – something I've been stressing since the moment I arrived. We have to find leading alumni in Israel and the US and engage them and invite them to join the Board of Governors. If we can get our own young people – our alumni – to get involved and contribute, they will be able to draw in others as well.

- **What is your parting message as Chairman to the friends of TAU around the world?**

  I'm part of the TAU family and I'm going to stick with it. Although there have been differences of opinion – every family has them – we have to work together. We all know what should be done for the University and we should just go out and do it.

Why TAU?

They were courted by Harvard, MIT, Stanford and other top universities in the US and Israel, but they chose Tel Aviv University, hands down. New faculty recruits describe why they love doing what they do at TAU:

I can fulfill my dream of establishing a lab in which students and post-doctoral researchers complement each other's skills and learn from one another. I believe that such an approach may lead to profound, long-term breakthroughs.

— Dr. Iftach Nachman

I always wanted to return to Israel. It is my homeland and my culture and I belong here. I received offers from other Israeli universities, but I chose Tel Aviv University because it is an outstanding research institution.

— Dr. Yael Roichman

I taught at Cornell and MIT, which are both well known for their great students. However, having taught at TAU for a year, I find that the students here are even more inspiring to teach because of their very strong background and enthusiasm for learning.

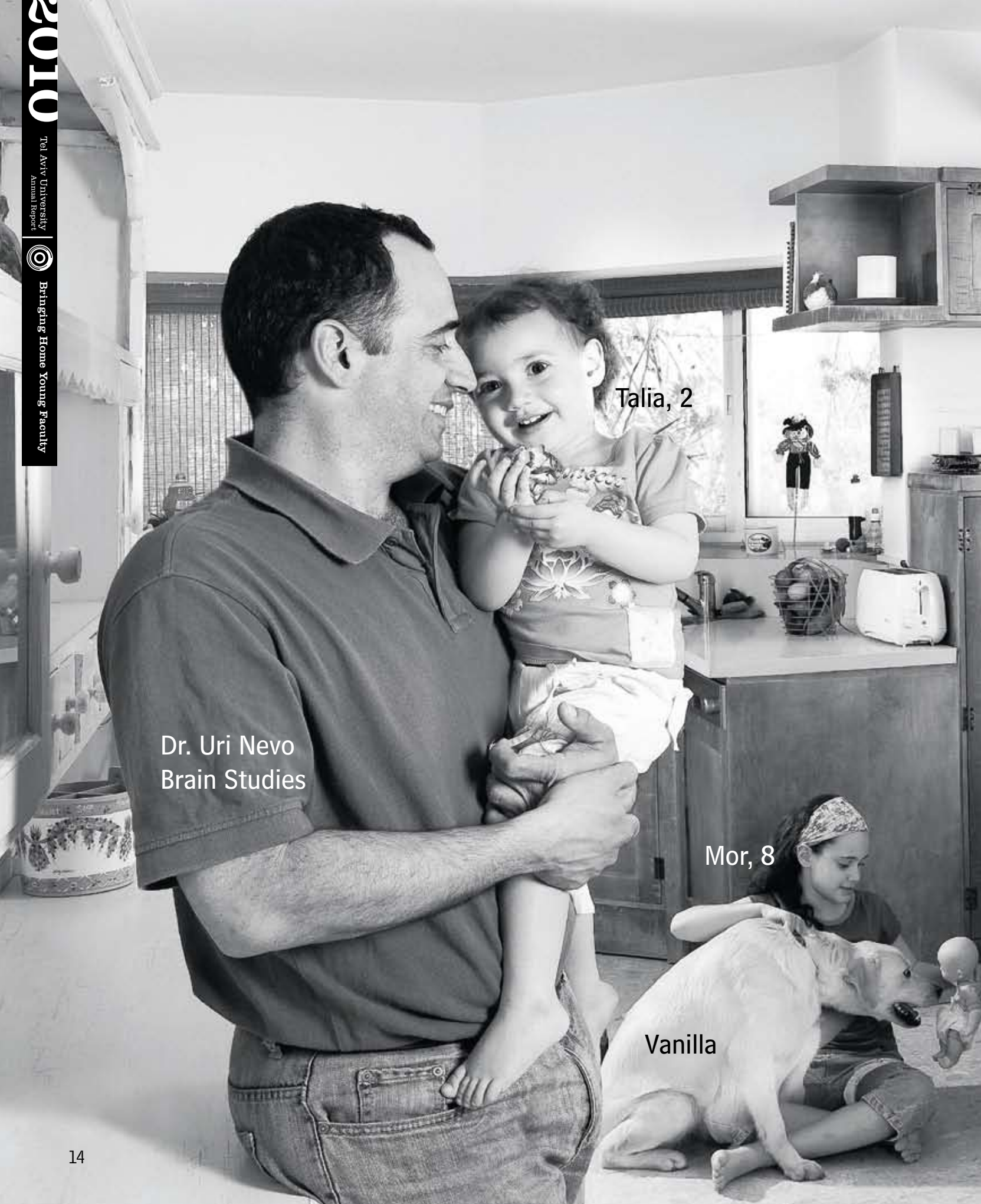
— Dr. Ronitt Rubinfeld

I did all my degrees at TAU, including a PhD. I believe in the people here, our students are more creative, and this is one of the few universities in the world where there is a true interdisciplinary culture.

— Dr. Dan Peer

At Tel Aviv University, I'm getting the chance to set up my dream laboratory, something new and unique in Israel. The University is 100 percent behind me.

— Dr. Tali Hatuka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Dr. Uri Nevo
Brain Studies
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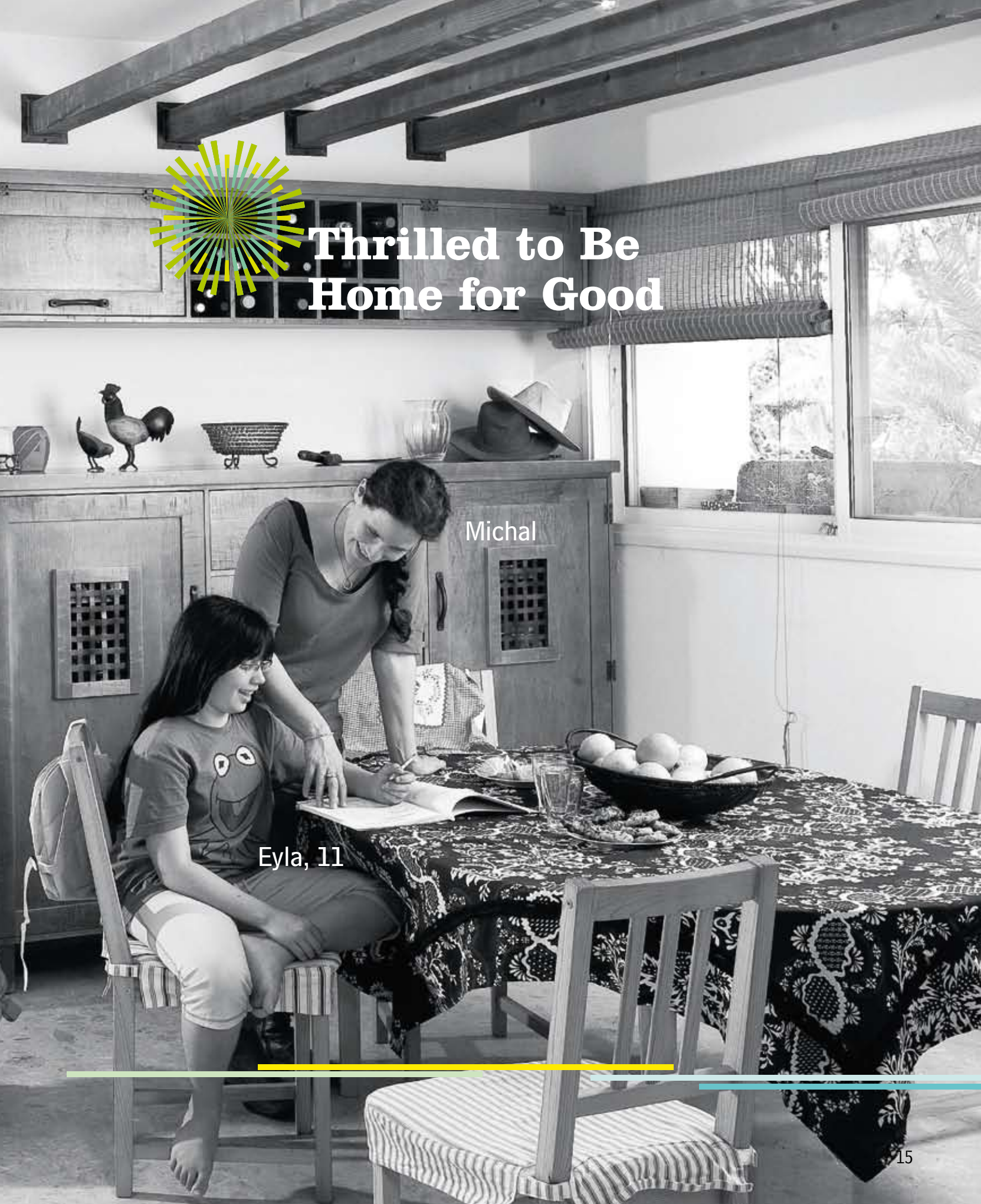
Vanilla

Thrilled to Be Home for Good



Inspiring Their Students

Dr. Iftach Nachman
Cell Differentiation

Field combines: Molecular Biology, Microfluidics, Live Cell Imaging, Statistics and Computational Analysis
Recruited from: Harvard and MIT
TAU alumnus: BSc
Army service: IDF Air Traffic Control Officer
Family status: Married+3
Hobbies: Drums, bird-watching, sports, hiking

Dr. Uri Nevo
Brain Studies

Field combines: Engineering, Physics, Medicine, Immunology, Biophysics, Bio-Imaging
Recruited from: NIH
TAU alumnus: BSc, MSc, PhD
Army service: Intelligence Corps
Distinctions: Fulbright Scholar, Academic Coordinator at TAU of the President Peres Youth Program for Nurturing Israel's Future Scientists
Family status: Married+3

Dr. Ella Sklan
Hepatitis Research

Field combines: Medicine, Clinical Immunology and Microbiology
Recruited from: Stanford
Army service: Air Force Medical Corps

Understanding why cells respond differently from one another

Iftach studies both the individual cell and the behavior patterns of groups of cells, and in both areas his work is groundbreaking. Using yeast cells as models, he and his research team at the George S. Wise Faculty of Life Sciences follow the process of meiosis (cell division) over time at the level of a single cell. He has identified the role of the master regulator gene IME1 as that of a molecular clock determining when the cell begins its process of transformation. Then, in a first, Iftach combines live cell imaging with statistical analysis to discover how properties like a cell's growth rate or changing shape affect its destiny. "By understanding such processes," Iftach says, "we can begin to unravel why similar cells respond differently in the same situation. We can then build on that understanding to improve methods of reprogramming of cells for regenerative medicine, and for treatment of tumor cells."

What the movement of water in cells tells us about the brain

Uri Nevo of the Iby and Aladar Fleischman Faculty of Engineering is looking at the brain in a way that has rarely been done before. Reasoning that water moves differently in a cell at rest than in a busily functioning cell, or in a faulty cell, he examines the movement of water molecules in brain cells using MRI imaging. This new approach suggests a groundbreaking and non-invasive way of examining live cells and identifying defects. "The long-term aim," Uri explains, "is to reach a comprehensive understanding of the physical events that occur in the functioning or damaged brain." In addition to this work, Uri is offering a new take on how the immune system works, which he calls "eco-immunity." Rather than talking about the system's ability to recognize "friend" or "foe," he proposes a model of stability that is based on a well balanced conflict within the body. Already shown to successfully predict certain events, this theory promises to change the way science understands and treats auto-immune diseases and such processes as organ transplant or graft rejection.

Depriving viruses of what they need to grow

"Millions of people around the world are infected with the Hepatitis C virus. Many do not respond to any current treatment, leading to dramatic loss of life," says Ella, who was recruited to TAU's Sackler Faculty of Medicine specifically to advance virology research. Her new laboratory focuses on the life cycle of viruses and their interactions with their host cells, on the molecular level. During her post-doc at Stanford, Ella identified a host protein that interacts with the Hepatitis C virus and is required for viral multiplication. This is important, she explains, because "inhibiting this interaction will block the virus from propagating within the patient's liver." The ultimate aim of her research is to develop treatments for Hepatitis C, which might also be effective for other pathogenic viruses that replicate in the same manner, such as Dengue, West Nile, Yellow Fever and others that today have no cure.

TAU Officers

Lay Leaders

Mr. Robert Goldberg

Chairman of the Board of Governors

Dr. Leora Meridor

Chairperson of the Executive Council

Mr. Michael H. Steinhardt

Honorary Chairman of the Board of Governors

Dr. Raymond R. Sackler

Honorary Chairman of the Board of Governors

Dr. h.c. Karl-Heinz Kipp

Deputy Chairman of the Board of Governors

Dr. h.c. Josef Buchmann
Mr. Stewart M. Colton
Dr. h.c. Raya Jaglom
Mr. John Landerer AM CBE
Mr. Adolfo Smolarz
Mr. Melvin S. Taub

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President

Prof. Dany Leviatan
Rector

Mordehai Kohn
Director-General

Prof. Ehud Gazit
Vice President for Research and Development

Dr. Gary Sussman
Vice President for Development and Public Affairs

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Pro-Rector

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Prof. Shlomo Biderman
Dean of the Lester and Sally Entin Faculty of Humanities

Prof. Hanoch Dagan
Dean of the Buchmann Faculty of Law

Prof. Ehud Heyman
Dean of the Iby and Aladar Fleischman Faculty of Engineering

Prof. Yoel Kloog
Dean of the George S. Wise Faculty of Life Sciences

Prof. Noah Lewin-Epstein
Dean of the Gershon H. Gordon Faculty of Social Sciences

Prof. Yoseph Mekori
Dean of the Sackler Faculty of Medicine

Prof. Hannah Naveh
Dean of the Yolanda and David Katz Faculty of the Arts

Prof. Haim J. Wolfson
Dean of the Raymond and Beverly Sackler Faculty of Exact Sciences

Prof. Yoav Ariel
Dean of Students

Prof. David Menashri
Dean for Special Programs

Yehiel Ben-Zvi
1931-2010

Tel Aviv University deeply mourns the passing of Vice President Yehiel Ben-Zvi, who served the University with great dedication for 36 years. Under his guidance and vision, the University prospered and attained a place of prominence in higher education in Israel and the world.

New Projects 2010

Young Faculty Recruitment

Stanley and Joyce Black Young Faculty Recruitment Chair – USA

Carolynne and Ze'ev Drori Family: Young Faculty Chair in Management – USA

Martin and Lois Whitman Young Faculty Recruitment Chair – USA

Academic Development

Naftali Artshtein Book Fund in Hellenistic Judaism and Classics – Estate of Isabella Artshtein, Israel

Judaism as Culture Study Program (Renewed Funding) – Posen Foundation, UK

Marc Rich Honors Program in the Humanities and Arts – Switzerland

Support for Academic Activity at the Cohn Institute for the History and Philosophy of Science and Ideas – Rachel and Moshe Yanai, USA

Support for the Department of Psychology – French Friends of Tel Aviv University

Research

Support for Breast Cancer Research – Breast Cancer Research Foundation, USA

Prof. Simon I. Domberger Chair for Innovative Value Creation – Joseph H. and Jacqueline Domberger, Monaco

Support for the Minerva Center for the Humanities – Diane Pregerson Glazer and Guilford Glazer, USA

Support for Basic Research in Science – Gulton Foundation Inc., USA

Kantor Center for the Study of Contemporary European Jewry – Switzerland/Israel

Dvora Eleanora Kirschman Research Fund in Parkinson's Disease – Israel

Minerva Center for the Humanities – Germany

Mogulof Family Chair in Social Policy – USA

The Research Unit on Jewish Peoplehood – Nadav Foundation, Israel

Geza Roth Chair of Modern Jewish History – Michael Roth, UK

Support for Biomedical and Nanoscience Research – Skirball Foundation, USA

USAID-ASHA Center for AIDS and Infectious Diseases Project – USA

Zeev Vered Desk for the Study of Tolerance and Intolerance in the Middle East – Canada

Sylvia Winnikow Fellowship Fund for Environmental Research in Cooperation with Keren Kayemeth Le'Israel – Australia

Support for MicroRNA Cancer Research – Wolfson Family Charitable Trust, UK

Campus Development

Automated Cellular Imaging System – Blanga family, Latin America

Albert and Elba Cuenca Entrance Plaza – Latin America

Laura Schwarz-Kipp Central Laboratory for Medical Genomics – Germany

David and Inez Myers Building for Transgenic Modeling of Human Disease – USA

Advocate Moshe Oster Memorial Student Discussion Wing – Mrs. Batya Oster, Israel

Sackler Cellular and Molecular Imaging Center – Doctors Arthur, Mortimer and Raymond Sackler Families, USA

Instrumentation for Raymond and Beverly Sackler Institute of Biophysics – Raymond and Beverly Sackler, USA

Equipment Fund for Transgenic Modeling of Human Disease – Susanna Steindling

Harry Triguboff Executive Education Auditorium – Australia

Equipment for Quantum Physics Laboratory – Wolfson Family Charitable Trust, UK

Equipment for Immunology Laboratory – Wolfson Family Charitable Trust, UK

Renewal of Imaging Microscope – Wolfson Family Charitable Trust, UK

Renewal of Mass Spectrometer – Wolfson Family Charitable Trust, UK

Vector Network Analyzer – Wolfson Family Charitable Trust, UK

Student Aid and Research Fellowships

David and Sara Farajun Doctoral Fellowships – Canada

Herta Frei Scholarship Fund for Orphaned Students – USA

Ruth Gafney Graduate Fellowship Fund in Medicine – Monaco

Miriam Hirshhorn Scholarship Fund in Mathematics – Israel

Naomi Prawer Kadar Yiddish Summer Scholarship Fund – Avraham Kadar, MD, USA

Dan Michaeli Scholarship Fund in Public Health – National Institute for Occupational and Environmental Health, Israel

Maurice J. Oringer Scholarship Fund at the School of Dental Medicine – Estate of Maurice Oringer, USA

Chaya Roset Scholarship Fund in the Exact Sciences – Israel

Shaiovich Scholarship Fund in Medicine – Israel

Support for PhD Students and President's Doctoral Fellowship Fund – Swiss Friends of Tel Aviv University

Helene Westreich Fellowships in Medicine and Environmental Studies – USA

Ruth and Allen Ziegler Graduate Fellowships – USA

Community

Dov Lautman Unit for Science Oriented Youth – various friends, Israel

Listed: Projects of $100,000 and above, by alphabetical order within categories

Top National Prizes

Israel Prize for Management and Administrative Science

Prof. Yair Aharoni, Management

Prof. Yair Aharoni is among the founders of the field of business administration in Israel and is recognized worldwide for his innovative contributions to international business theory and political economy theory. He forged new pathways in the understanding of the foreign investment decision-making process, business-government relations, the emerging high-tech economy and the multinational service industry. Prof. Aharoni developed new academic institutions in Israel and abroad, serving as the first dean of TAU's Faculty of Management—Leon Recanati Graduate School of Business Administration, and establishing the Faculty's Israel Institute of Business Research and Top Executive Program. Prof. Aharoni is a fellow of the Academy of International Business and of the International Academy of Management. Born and raised in Israel, Prof. Aharoni earned his DBA degree at Harvard Business School.

"I see this prize as my nation's recognition of my lifelong contributions. The hundreds of congratulatory phone calls and e-mails from near and far are a heartwarming addition."

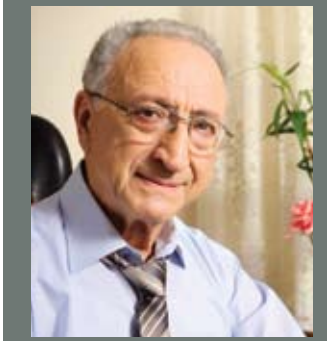
Israel Prize for Chemistry

Prof. Abraham Nitzan, Exact Sciences

Prof. Abraham Nitzan is a world leader in the field of theoretical physical chemistry. His outstanding scientific contributions have laid the foundations for the research fields of molecular electronics, nanoscience and nanotechnology. He has also promoted the development of quality academic research and teaching in the State of Israel. Prof. Nitzan is incumbent of TAU's Riwka (nee Schechter) and Iser Kodesz Chair of Chemical Dynamics Sciences, Head of the Mortimer and Raymond Sackler Institute of Advanced Studies and a former Dean of Exact Sciences. He is a member of the Israel Academy of Sciences and Humanities, a foreign honorary member of the American Academy of Arts and Sciences and a fellow of the American Association for the Advancement of Science and the American Physical Society.

Israel Prize for Hebrew Linguistics

Prof. Abraham Tal, Humanities



Professor Emeritus Abraham Tal has attained outstanding achievements in the study of Samaritan traditions and ancient Aramaic translations of the Bible, and in his lexicographical work as editor-in-chief of the Historical Dictionary of the Hebrew Language. He was incumbent of TAU's Yaakov and Shoshana Schreiber Chair in the History of the Hebrew Language and, until recently, Vice President of the Academy of the Hebrew Language. He is a recipient of the Mifal Hapayis Award and the Ben-Zvi Award. Born in Romania, Tal emigrated to Israel in 1950 and, after completing his military service, began his academic studies at TAU, where he earned his BA. From 1964 until his retirement in 1999, he was a member of the TAU faculty, serving as Chairman of the Department of Hebrew Language and Head of the Chaim Rosenberg School of Jewish Studies.

Distinctions

Prof. Karen B. Avraham, Medicine, President of the Association for Research in Otolaryngology

Prof. Leslie Banks-Sills, Engineering, Fellow of the American Academy of Mechanics

Prof. Daniel Bar-Tal, Humanities, Otto Klineberg Intercultural and International Relations Award of SPSSI

Prof. Eliezer Ben-Rafael, Social Sciences, Order of Arts and Letters of France

Prof. Yoram Cohen, Exact Sciences, Fellow of the International Society of Magnetic Resonance in Medicine

Prof. Nachum Dershowitz and Dr. Lior Wolf, Exact Sciences, Best Paper Award at the 2009 Post-ICCV Workshop on eHeritage and Digital Art Preservation

Prof. Noam Eliaz, Engineering, Uhlig Award from NACE International

Prof. Israel Finkelstein, Humanities, Order of Arts and Letters of France

Prof. Amit Gefen, Engineering, Perkins Prize for the Best Paper published during 2008 in *Medical Engineering & Physics*

Dr. Raphael Greenberg, Humanities, Open Archeology Prize of American Schools of Oriental Research

Dr. Eran Halperin, Exact Sciences, Raymond and Beverly Sackler Career Development Chair

Prof. Gad Kaynar, Arts, Officer of the Royal Norwegian Order of Merit

Prof. Joseph Klafter, Exact Sciences, Honorary Doctorate from Wroclaw University of Technology, Poland

Prof. Yossi Loya, Life Sciences, Member of the Israel Academy of Sciences and Humanities

Prof. Dan Maoz, Exact Sciences, American Astronomical Society's Chambliss Award

Prof. Yossi Matias, Exact Sciences, Fellow of the Association for Computing Machinery (ACM)

Prof. Tsevi Mazeh, Exact Sciences, Chaim Weizmann Prize

Prof. Vitali Milman, Exact Sciences, Humboldt Research Award

Prof. David Moskona, Medicine, Honorary Doctorate from Plovdiv University, Bulgaria

Prof. Rafi Nachmias, Education, 2009 John Wiley & Sons Best JASIST Paper of the Year Award of the American Society for Information Science and Technology

Prof. Abraham Nitzan, Exact Sciences, Member of the Israel Academy of Sciences and Humanities

Dr. Dana Olmert, Humanities, Bahat Prize

Prof. Ranaan Rein, Humanities, Vice President of the Latin American Jewish Studies Association (LAJSA)

Dr. Yael Roichman, Exact Sciences, Raymond and Beverly Sackler Career Development Chair

Prof. Ariel Rubinstein, Social Sciences, Rothschild Prize for 2010

Prof. Shlomo Sand, Humanities, Prix Aujourd'hui 2009

Prof. Anita Shapira, Humanities, Honorary Doctorate from Ben-Gurion University of the Negev

Prof. Elana Shohamy, Education, UCLES/ ILTA Lifetime Achievement Award

Prof. Sidney Strauss, Education, Member of the National Academy of Education (United States)

Dr. Oren Tal, Humanities, Ish Shalom Prize for History of the Land of Israel

Prof. Manuel Trajtenberg, Social Sciences, Chairman of the Planning and Budgeting Committee of the Council of Higher Education

Prof. Haim Wolfson, Exact Sciences, Test-of-Time Award from the International Conferences on Computer Vision

Prof. Eli Yassif, Humanities, Bahat Prize

Dan Yohas, Arts, Landau Prize in the Life Project Category

Interdisciplinary Initiatives

The new David Berg Foundation Institute for Law and History – a first for Israel – will attract the world's top students and leading scholars in the field.

Collaborative work between diverse fields fosters cross-fertilization of ideas and the emergence of original concepts, new methods and creative thinking on a grand scale. Below are a few of the interdisciplinary initiatives doing just that across the campus – and beyond.

On human interaction and society

- **Art, design, filmmaking and science**

The "Science Communication Project" is a collaborative enterprise between the Department of Film and Television at TAU and the Bezalel Academy of Art and Design. Developed by PhD student **Udi Ben-Arie** (Arts), together with Eyal Soreq and Eran Yuval of Bezalel, the project provides a unique opportunity for students of film, animation and design to work together in the creation of media projects ranging from documentaries to interactive fiction and sophisticated hyper-design. These projects will be part of the online experience offered by the Brain Exhibition to open in 2011 at the Jerusalem Science Museum.

Environmental Policy Clinic

Under the direction of **Dr. Dorit Kerret** (Social Sciences), a new faculty member and former Porter Fellow, the Environmental Policy Clinic is a joint project of the Department of Public Policy, the Porter School of Environmental Studies and the Harold Hartog School of Government and Policy. The clinic is training students, through research and fieldwork in the community, to promote sustainable environmental policy in Israel. The clinic will turn out professionals who can influence environmental policy by providing practical recommendations and assistance to municipalities, government ministries, non-governmental organizations (NGOs), and industry.

- **Minerva Center for the Humanities**

Providing a forum for intellectual exchange between scholars from a variety of national, cultural and academic backgrounds, while also providing wider exposure for Israeli scholarship, the Minerva Center for the Humanities is a joint initiative of the Minerva Foundation of Germany and TAU. **Professors Rivka Feldhay** and **Adi Ophir** of the Cohn Institute for the History and Philosophy of Science and Ideas (Humanities), together with Dr. Raef Zreik of Haifa University, are heading the first three research projects of the center. "The Migration of Knowledge" traces the intellectual exchanges between Europe, the Middle East and the Far East. "The Lexicon for Political Theory" involves the writing and collection of lexical essays on concepts in politics. And the multi-cultural study, "Living Together: Exploring Modes of Political Membership," aims to break through boundaries between cultures and societies to enrich the repertoire of options for living together within a political community. Support for the new center was provided by Diane Pregerson Glazer and Guilford Glazer of the United States.

- **The David Berg Foundation Institute for Law and History**

The first of its kind in Israel, the David Berg Foundation Institute for Law and History under the direction of **Prof. Ron Harris** (Law) is devoted to enriching the academic discourse on law and history on an international level, advancing original, interdisciplinary research, and promoting public awareness of the field. In its efforts to preserve and document the history of law in Israel, the Berg Institute is focused on tracking down and collecting historically significant legal materials from the periods of the British Mandate and early statehood, and is creating a database incorporating all publications on the history of law in Israel. At its first international conference, on the history of business corporations, the institute will be hosting leading lawyers, historians and economists from the US and Europe.

On technology and the sciences

Digital technology and architectural design

New faculty member **Dr. Eran Neuman** (Arts) has established something unique not only on TAU's campus, but on any campus – a digital architectural lab. Its main aim is to introduce cutting-edge technologies in architectural research and teaching at the David Azrieli School of Architecture, but it will also serve researchers in other fields, such as mechanical engineering and medicine. Featuring a new 3D printer, which was purchased with a generous donation received for this purpose, the laboratory supports the development of new types of software platforms that integrate digital media and architectural design techniques. These new platforms can be customized and adapted for each project to enable better planning of smart and ecological buildings, to develop new machinery or change the way old machinery works, and to prevent waste of material and resources. The purchase of additional equipment for the lab is being funded by David Azrieli.

- **"And the people of Israel called the bread manna"**

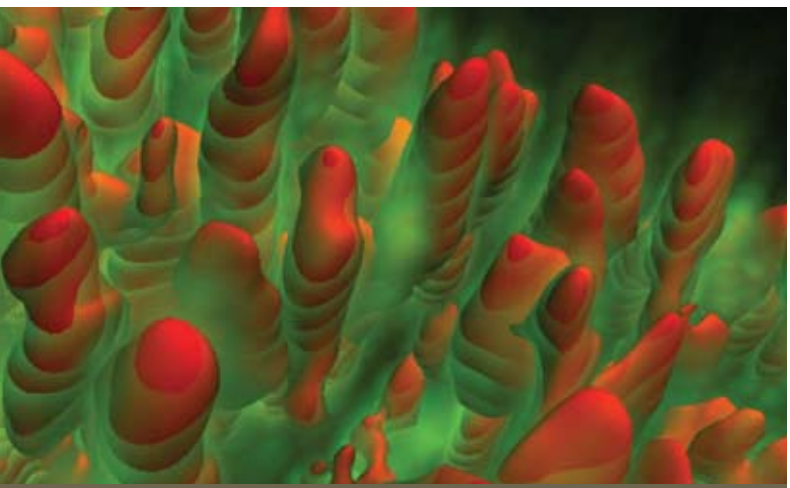
  A state-of-the-art Plant Growth and Analysis Facility was recently completed with funding from the Manna Center for Plant Biosciences. Under the direction of **Prof. Daniel Chamovitz** (Life Sciences), the aim of the Manna Center is to gain knowledge that can be applied to the improvement of major crops, while respecting such issues as biodiversity, ecological balance and sustainable management of natural resources. The new facility provides all the necessary equipment for advanced research, including four ultra-modern, computer-controlled plant growth rooms, high-accuracy environmental growth chambers and advanced microscopes. The facility is open to all scientists at TAU who employ plants in their research.

- **Sackler Cellular and Molecular Imaging Center**

  The Sackler Cellular and Molecular Imaging Center is a new interdisciplinary facility bringing together scientists and physicians with a common interest: to use and develop state-of-the-art imaging technologies for the study of disease progression in living cells. It combines the latest imaging technologies, such as confocal microscopy and optical imaging, with computed tomography (CT) and high resolution ultrasound. Under the direction of **Dr. Ilan Tsarfaty** (Medicine), the center is open to researchers and students from Medicine, Life Sciences, Engineering and other faculties, providing imaging services, academic courses and training in the use of its specialized equipment. The interaction generated by the center is expected to lead to new understanding of the biology of diseases such as cancer and neurodegenerative disease, and to new methods of treatment.

Unlocking the secrets of the cell

The Genome High-Throughput Sequencing Laboratory was recently established as a joint venture of Life Sciences and Medicine. Under the management of new faculty recruit **Dr. Noam Shomron** (Medicine), the lab enables a thorough investigation of cellular systems – such as cancer microenvironments, developing tissues, or the brain and central nervous system – under conditions of health and disease. The specialized equipment can read millions of molecules within a given cell sample, a task which was impossible only a few years ago. The ability to obtain such a large amount of data in one experiment, and to compare between samples, will allow researchers to follow the development of genomic diseases, such as cancer or mental disorders, with unrivaled speed.



An increase in the levels of a novel protein (green) identified by Dr. Ilan Tsarfaty could be involved in breast cancer and obesity by hampering the energy production factories (red) of cells.

On cooperation across borders

- **Quenching the world's thirst**

  TAU is involved in an international consortium for developing a water treatment system to be deployed in third world countries. **Prof. Reuven Boxman**, incumbent of the Kranzberg Chair in Plasma Engineering; **Dr. Hadas Mamane**, a former Porter Fellow; and **Dr. Vladimir Zhitomirsky** (Engineering), together with **Dr. Dror Avisar** (Humanities), are joined in the consortium by partners in Israel, Denmark, UK, France, Italy, South Africa and Jordan, with funding coming from the EU's Seventh Framework Program. Applying nanotechnology to water treatment, the researchers are developing a system that will provide drinking water from contaminated or recycled sources without requiring any consumables such as chemicals or electricity. The cost-effective water treatment system will help counter the devastating effects of drought.

- **Patient self-management**

  Prof. Dov Te'eni (Management), incumbent of the Mexico Chair in Management Information Systems, has developed the model to be used in an international collaborative project called PERISCOPE – Personalized and Contextualized Information in Self-Management Systems for Chronically Ill Patients. With a large grant from the Dutch government, the project will use Prof. Te'eni's model of computer-mediated communication to design and develop medical information systems for patient self-management. These systems are then scheduled to be installed and monitored at a number of Dutch hospitals.

Applying nanotechnology, TAU scientists and international partners are developing a cheap and clean water treatment system for drought-stricken countries.

"CONNECT" – A TAU-initiated project – will produce a roadmap of all the brain's nerve cell connections.

- **Information technology vs. privacy**

  As part of its Seventh Framework Program, the EU has granted major funding for research on privacy in the Internet era to be conducted by **Prof. Niv Ahituv**, incumbent of the Marko and Lucie Chaoul Chair for Research in Information Evaluation (Management), **Dr. Michael Birnhack** (Law) and TAU's Interdisciplinary Center for Technology Analysis and Forecasting (ICTAF), together with five European institutes. The project, entitled PRACTIS – Privacy-Appraising Challenges to Technologies and Ethics, aims to increase understanding of the future consequences of information technology, and particularly how these consequences might impact personal privacy.

- **A roadmap of the brain**

  Brain connectivity is a fingerprint of our behavior and cognitive abilities, and a possible early indicator of degenerative disease. To study this area, **Dr. Yaniv Assaf** (Life Sciences), together with **Prof. Yoram Cohen** (Exact Sciences), established CONNECT, a two-year research program for imaging brain connectivity that won substantial funding from the EU's Seventh Framework Program and includes 10 research groups from the UK, Italy, Germany, France, Denmark and Switzerland. Using DTI (diffusion tensor imaging), an MRI application particularly suited to imaging bundles of neural axons (fibers that conduct messages from the nerve cell outward), the project's ultimate aim is to produce an atlas of brain connectivity – a comprehensive roadmap detailing all the brain's nerve cell connections. Such an atlas would tremendously advance understanding of brain wiring and functioning and our ability to pinpoint trouble spots.

New Teaching Programs

Interdisciplinary Programs

- **Materials and Nanotechnologies – Toward the next industrial revolution**

  Materials science and nanotechnologies are expected to play a central role in 21st century industry, significantly impacting the economy, the environment and health. Designed to produce the future leaders in this field, TAU's new MSc and PhD program in Materials and Nanotechnologies, headed by **Prof. Noam Eliaz** (Engineering), is managed jointly by four faculties – Engineering, Exact Sciences, Life Sciences and Medicine – and the Center for Nanoscience and Nanotechnology. Students in the program are pioneering new devices such as quantum computers with unprecedented speed and power; highly sensitive biosensors that can detect blood sugar levels, airborne bacteria or water contaminants; and DNA-based transistors, among other exciting possibilities.

- **Cell and Tissue Engineering – Toward regenerative medicine**

  Tissue engineering, an emerging field in biomedical engineering, will provide the technological basis for regenerating damaged or diseased organs and tissues in the body. The new Cell and Tissue Engineering Teaching Laboratory developed and managed by **Prof. Amit Gefen** (Engineering) is a unique facility on an international scale. Undergraduate students receive hands-on training in culturing, monitoring and testing cells and tissues.

A team of international and Israeli TAU students presented a business proposal to the United Nations this April for encouraging foreign investment in Gaza.

- **Child and Youth Culture – Toward greater professional knowledge**

  The Unit of Culture Research at the Shirley and Leslie Porter School of Cultural Studies, Entin Faculty of Humanities, has established Israel's first Master's Program in Child and Youth Culture. Initiated and directed by **Prof. Zohar Shavit**, incumbent of the Porter Chair of Semiotics and Culture Research, and **Dr. Yael Darr** (Humanities), the program trains the next generation of researchers and practitioners to shape areas in Israel that involve the social and individual lives of children, such as the education system, family courts, youth movements, children's publishing and children's television.

English-Language Graduate Programs

As part of TAU's intensified drive to globalize its campus, the Gershon H. Gordon Faculty of Social Sciences launched four new master's degree programs for international and Israeli students.

- **Conflict Resolution –** The International Program in Conflict Resolution and Mediation, headed by **Prof. Ephraim Yaar** and directed by **Maureen Meyer**, opened in 2009/10 with 38 students from 17 countries. Students gain a broad, multidisciplinary understanding of conflict resolution; conduct in-depth research; and gain practical skills through mediation workshops. The new MA is based on the successful Evens Mediation and Conflict Resolution Program taught in Hebrew.

- **Security and Diplomacy –** An international program for a Master of Political Science in Security and Diplomacy Studies, headed by **Prof. Azar Gat**, incumbent of the Ezer Weizman Chair in National Security Studies, will incorporate tours of the Israel Defense Forces and meetings with Israeli officials, seasoned security practitioners and ambassadors.

- **Israeli Politics –** The new MA Program in Israeli Politics is designed to provide international students with a panoramic knowledge of Israeli politics and society, as well as with a comparative perspective on Middle East affairs. The program, headed by **Prof. Michal Shamir**, incumbent of the Alvin Z. Rubinstein Chair in Political Science, and directed by Dr. Amal Jamal, also offers educational tours and meetings with Israeli political figures.

- **Coping with Trauma –** The international MA program in trauma and crisis studies at the Bob Shapell School of Social Work, headed by **Prof. Yael Benyamini**, will equip students with the academic and practical tools to understand the impact of crises – be they natural disasters, political violence or life crises – and to help individuals, organizations and governments to effectively deal with them.

Campus-Wide Research

Research regarding human interaction

Feeling good at work

Recently recruited to TAU from Stanford University, **Dr. Sharon Toker** (Management) focuses on the physical and mental wellbeing of employees. She is studying the correlation between workplace stress and chronic illness, and is developing models for health-promoting intervention programs in organizations. Given the amount of time one spends at work, such improved workplace tools promise to significantly impact overall human health.

Corporate behavior and equal opportunity

New faculty recruit **Dr. Alexandra Kalev** (Social Sciences) focuses on two main aspects of corporate behavior – the effectiveness of corporate compliance with anti-discrimination laws, and ways in which the corporate search for profit affects gender and racial inequalities. Her findings were widely published in leading sociology journals and the US national press, including in *Time Magazine* and the *Washington Post*. With an initiative currently underway to establish an Equal Opportunity Employment Commission in Israel, Kalev's research promises to help the commission and Israeli corporations define best practices for reducing discrimination in the workplace.

Peace education in societies at war

The incumbent of the Branco Weiss Chair for Research in Child Development and Education, **Prof. Daniel Bar-Tal** (Education), together with Dr. Yigal Rosen of Haifa University, investigates how peace education may facilitate change in societies experiencing intractable conflict, and how this change can best be implemented. Successful peace education to overcome years of internalized beliefs regarding both the conflict and those perceived as rivals requires wide public support. However, in the absence of this, indirect peace education can still be implemented not by challenging belief systems but by promoting general themes such as human rights, tolerance, critical thinking and skills of conflict resolution.

Research touching on Jewish subjects

The body and Jewish texts

PhD student **Yair Lipshitz** (Arts), who is being supervised by Prof. Shimon Levy and is the recipient of a Dan David Fellowship for outstanding doctoral work, is an authority on Jewish theater. Offering a new look at the understanding of Jewish texts, he examines the way in which the Bible, Midrash, and Kabbalistic and Hasidic texts are reinterpreted on stage through an actor's body language. This interaction between text and the performing body of the actor endows theater with a unique ability to present an artistic interpretation of Jewish texts in different cultures and times.

Attitudes toward religious conversion

Recently arrived from Yale, **Dr. Youval Rotman** (Humanities) examines Jewish conversion to Christianity as part of his study of minority religion conversions during antiquity and the Middle Ages. He shows that while conversion of Jews was perceived by Jewish authors as the destruction of their identity, Christian-Byzantines saw it as the resolution of the Christian-Jewish conflict. However, once Islam entered the arena and threatened Christians with conversion, Christian focus turned to this risk. Rotman uses this analysis of how the theme of conversion is treated to reveal the cultural and political dynamics between diverse religious communities.

TAU findings on corporate anti-discrimination practices will be adopted by Israel's planned new Equal Opportunity Employment Commission.

TAU computer scientists have helped write a program for analyzing the 250,000 text fragments of the Cairo Geniza.

- **Award for digitizing the Geniza**

  The Cairo Geniza comprises an extraordinary set of fragmented manuscripts spanning nearly 1,000 years and containing over 250,000 hand-written items, mainly in Hebrew characters. In conjunction with the Friedberg Geniza Project, the work of **Prof. Nachum Dershowitz** and **Dr. Lior Wolf** (Exact Sciences) and their coauthors led to the development of a computer program that can analyze and compare handwriting to ascertain if fragments were written by the same scribe. They received Best Paper Award at the 2009 post-ICCV Workshop on eHeritage and Digital Art Preservation in Kyoto, Japan, for their research.

- **Judaism and the environment**

  Given that ancient Jewish texts have had a wide influence on the development of Western monotheistic culture, and that religion is a powerful tool in influencing public perceptions, PhD student **Noa Dolev-Israeli** (Environmental Studies) is examining Jewish texts from the perspective of environmental science. Her novel research, which is being supervised by Prof. (Emeritus) Ithamar Gruenwald, is revealing how ancient attitudes toward the environment as portrayed in the Bible and rabbinic literature shape today's philosophy, attitudes and approach to the environment.

Research toward treating neurodegenerative diseases

- **Finding the key player in Alzheimer's**

  Using a combination of high-resolution optical imaging, electrophysiology and molecular biology to monitor the functioning of nerve cell connections and networks, new faculty member **Dr. Inna Slutsky** (Medicine) and team have identified, for the first time, a key player in the onset of cognitive impairment in Alzheimer's disease. This new understanding will make it possible to target early dysfunction and discover ways of modifying the course of the disease and prevent devastating cognitive decline. Students working in Dr. Slutsky's lab are partially supported by the Sheila and Denis Cohen Charitable Trust of the UK.

- **Spraying disease away**

  Studying bacteriophages, which are viruses that attack bacteria and are the most numerous life form on earth, **Prof. Beka Solomon's** research team (Life Sciences) has developed a new therapeutic approach for the treatment of Alzheimer's disease. They discovered that the unique structure of a particular phage (Ff) enables it to permeate the brain where it dissolves beta-amyloid plaques involved in such diseases as Alzheimer's and Down's Syndrome. Based on this discovery, and the convenience and effectiveness of intranasal administration, a nose spray for treatment of neurodegenerative diseases could one day be available. Prof. Solomon holds the Chair of Biotechnology of Neurodegenerative Diseases at TAU.

- **New non-invasive diagnostics**

  Doctoral student **Adi Sheinfeld** (Engineering), supervised by Prof. Avishay Eyal, is pioneering the use of photoacoustic (PA) effects – generating sound waves using an optical source – for biomedical applications. Based on the correlation between certain proteins deposited in the eye and the presence of Alzheimer's disease, and the ability of the PA method to detect that protein, Sheinfeld is investigating its application as a sensitive and non-invasive method for diagnosing the disease. She is also researching other applications such as blood flow mapping for diagnosing stenosis – narrowing of the blood vessels.

A nose spray based on TAU laboratory discoveries could one day be available for treating Alzheimer's disease.

- **New inroads into Parkinson's**

  Prof. Jeffrey M. Hausdorff (Health Professions) and his colleagues received a grant of over half a million dollars from the Michael J. Fox Foundation for Parkinson's Research. They are examining the role of white matter pathology – defects in the brain's nerve cell axons, the fibers that send messages out to other nerve cells – in the development of the Postural Instability and Gait Disturbance (PIGD) type of Parkinson's disease. The study promises to enhance the understanding and treatment of this debilitating illness.

Research toward advancing technology

- **Mathematics and molecules**

  In collaboration with colleagues from Yale and Princeton Universities, young faculty recruit **Dr. Yoel Shkolnisky** (Exact Sciences) is grappling with the mathematical challenges posed by the reconstruction of large molecules, such as proteins and viruses, from data collected by an electron microscope. The new mathematical tools being developed will potentially be able to address currently unsolved questions in structural biology, which may lead to breakthroughs in the biomedical field.

- **Taking the toxicity out of chemotherapy**

  Young faculty member **Dr. Micha Fridman** (Exact Sciences), in collaboration with **Prof. Eliezer Flescher** (Medicine), is working on developing novel compounds that promise to provide chemotherapy for treatment of cancer without the devastating side effects. Discovering the precise mechanism leading to life-threatening toxicity, Fridman has altered the structure of the chemotherapy compounds to eliminate this effect. Tests of the anti-cancer activity of the new compounds have shown them to be as effective as currently used chemotherapies. Further testing to determine absence of toxicity is currently being conducted. Dr. Fridman receives support from the Nathan Jacobson Young Faculty Fund.

Compounds based on scorpion venom could serve as effective painkillers as well as environmentally safe insecticides.

- **Scorpion venom, anyone?**

  Some peptide toxins found in scorpion venom interfere with the body's ability to communicate pain, while others specifically kill insects but not vertebrates. **Prof. Michael Gurevitz** (Life Sciences) reasoned that if he could figure out at the molecular level how, precisely, these toxins work, this could pave the way for the engineering of chemical derivatives that mimic the toxins. Such compounds could serve as effective painkillers with no side effects, or novel insecticides that neither contaminate the environment nor endanger humans.

- **Engineered antibodies**

  Antibodies are proteins that occur naturally in the body and are active components of the immune system, identifying and neutralizing foreign objects. The research group directed by **Prof. Itai Benhar** (Life Sciences) has applied advanced engineering technology to create such proteins in the laboratory that perform just as well as those grown from cell cultures. Producing antibodies in the lab represents a rapid and cost-effective option, promising to significantly contribute to the advance of antibody technology.

- **Talk to me in pictures**

  Researching the field of computer vision, **Dr. Shai Avidan** (Engineering) is working toward two main aims: to develop computers that can see and understand, and to make images as accessible as text. This has led to his developing such applications as a smart camera to be installed in vehicles to help prevent accidents, or new features in Photoshop that offer better control and image editing much the way a word processor edits text.

- **Keeping science scientific**

  The UK's Royal Statistical Society invited **Professors Yoav Benjamini** and **Yosef Hochberg** (Exact Sciences) to re-read a previously published and highly cited paper in recognition of its immense influence on statistical theory and practice. The paper introduced the concept of the "false discovery rate" in scientific investigations, which is the anticipated proportion of claimed discoveries that are actually false out of all the discoveries made in a complex study. In their paper, they proposed a statistical method that controls for such false results. This was the first time the Society initiated the retrospective reading and discussion of a published paper. Prof. Benjamini holds the Nathan and Lily Silver Chair for Applied Statistics at TAU.

15,000 prospective students visited TAU's Open Day, up from 10,000 last year.

Student Life

- **"Small Stage" goes interdisciplinary**

  What do students of music, engineering, history, film and theater have in common? They all collaborate to produce Small Bama ("Small Stage"), a five-day festival of the arts featuring original plays, musical happenings in the hallways, photo exhibitions, video clips and make-up demonstrations. The festival was originally initiated by students of the Theater Arts Department who sought an outlet for their creative talents and an autonomous platform to present their work. It has since broadened its scope to incorporate new art forms as well as participants from other departments who contribute their special expertise to the event. With support from faculty and funding from the Student Union, about 100 students voluntarily give of their time for the better part of the school year, including holding intensive rehearsals throughout the summer. The festival, under the artistic direction of master's student **Halit Michaeli**, has won increasing recognition as an important annual event showcasing tomorrow's professionals of stage and screen and reaching audiences of up to 3,000.

- **Encouraging entrepreneurship**

  University students are abuzz with ideas, but few have the courage or know-how to turn them into commercial ventures. Two new student clubs aim to give students the tools, connections and confidence they need to transform their ideas into enterprises. StarTAU, established by Economics and Accounting undergraduate **Oren Simanian**, offers a one-stop shop for putting students together with experts and industry executives who can help develop and promote their ideas. Oren has already enlisted venture capital companies and law firms to be part of his strategic network. BeehiveTAU, founded by Industrial Engineering and Management undergraduate **Nadav Eylath**, sponsors lectures and case study presentations by industry leaders, as well as practical workshops. It also promotes the national BizTech innovative idea competition as a spur to developing practical skills. Both clubs provide enterprising students with a bridge from academia to business opportunity.

- **Celebrating Five Years of Ziegler Support**

  This year TAU celebrated the 5th anniversary of the Ruth and Allen Ziegler Student Services Division, which is generously supported by philanthropist Ruth Ziegler of the US. Along with increasing the range of services, expanding financial aid and helping more students academically, Ziegler support has allowed the Student Services Division to think out of the box and initiate new projects that will increase its ability to achieve its ultimate aim – to help students succeed.

  Asking the question, "Who is likely to drop out and why?" is the starting point of a new project initiated by Dean of Students **Prof. Yoav Ariel** and supervised by Psychological Services head **Alberto Meschiany**. This is a first-of-its-kind research project aimed at identifying students at risk of dropping out of university and providing them with the advice and support they need to complete their studies. Israeli company WizSoft helped make the project possible with the donation of a data mining program, and Ziegler support is financing the mammoth task of feeding into the system all the data regarding drop-outs over the last 15 years. The goal of the project is to create a Student Retention Office in the Ziegler Division that will recognize early signs of student difficulty and take preventive steps against students' dropping out.

  Ziegler support from 2004 to 2009 has resulted in quantifiably greater assistance to students:

  - **More financial support –** The total number of students receiving some form of financial aid increased from 6,500 to 7,500.
  - **More academic support –** Tutoring services rose from 2,504 hours of tutoring provided to 318 students, to 3,968 hours of tutoring provided to 475 students.
  - **More daily support for basic needs –** Within a year of the commencement of Ziegler support, the number of food vouchers was increased five-fold, ensuring needy students a daily hot meal.

TAU and the Community: Expanding Outward

Providing support where needed

- **Giving a better start to preschoolers**

  Master's-level education students specializing in early childhood counseling are devoting one day a week to working at daycare centers that are participating in the nationwide Good Start project for at-risk preschool children. In a bid to optimize the childcare environment, the students provide lectures and counseling to staff and to parents, work with the children both individually and in groups, and collaborate with municipalities, gaining their support for the project. Initiated by **Dr. Dorit Aram** (Education), the program, called Gsharim (" Bridges"), involves seven weekly hours of student fieldwork as part of their course requirements. The daycare centers targeted represent a cross-section of Israeli society, giving students experience with Ethiopian, Arab and Ultra-Orthodox communities. The program is joint a venture of the Schussheim Foundation, Matan (United Way Israel) and Ashalim (JDC).

- **Mentoring Sudanese refugees**

  Under the direction of **Dr. Miriam Golan** and coordinator **Avital Kaye-Tzadok** (Social Work), the "Girls for Girls" Mentoring Program prepares teens and young women in distress for a better life and trains them to become mentors of other girls in distress. Now, this successful program is focusing on an additional group – young female Sudanese refugees. The project aims at rescuing these girls, totally marginalized from Israeli society and lacking in support services, from becoming helpless women. Former graduates of the mentoring program will themselves act as mentors to these girls, who will attend classes on the TAU campus and receive training to become valued individuals who in turn mentor those in need.

- **Motivating Ethiopian-Israelis to demand healthcare**

  Dr. Nurit Guttman (Social Sciences) and co-researchers addressed the issue of how to ensure that Ethiopian immigrants realize their health rights, with the understanding that providing factual information is not enough. Research indicates that an essential condition is to make immigrants believe that they actually can realize their rights, despite language, cultural barriers and feelings of marginalization. Guttman and her team developed several types of informative materials, from film clips to illustrated booklets. Based on narratives taken from immigrants' own stories, the materials were designed in a culturally-centered way, using drama and humor. This approach was well received by the Ethiopian immigrants. The project, involving Ethiopian community and rights advocacy organizations, was funded by the Israel National Institute for Health Policy Research.

Arts in the community

- **Israeli and Palestinian filmmakers get together over coffee**

  The 13th International Student Film Festival, produced by graduates and students of the Film and Television Department (Arts) and long recognized as one of the world's top student festivals, presents a unique opportunity for intercultural dialogue. "Coffee – Between Reality and Imagination" is a cooperative cinematic production by Israeli and Palestinian student filmmakers scheduled to be premiered at the festival in Summer 2010. Aimed at increasing mutual tolerance and understanding, the project consists of 12 fictional or documentary short films revolving around the uniting theme of coffee – something shared by Israelis and Palestinians alike in their daily lives and personal interactions. More than that, coffee is portrayed as taking on a cultural identity in a broader sociopolitical context. With this first, it is hoped that cinema will provide a platform for further regional cooperation.

- **Bringing culture to the periphery**

  The Buchmann-Mehta School of Music (Arts) is teaming up with CultureLab Dimona, a theater company serving Israel's southern city of Dimona, for the production of a double-bill performance. In a year-long project, music students at TAU will work together with faculty, professional singers and musicians, stage designers and directors, culminating in the performance of the Weill/Brecht opera *Der Jasager* ("The Yes Sayer," 1930). Simultaneously, and in collaboration, CultureLab Dimona will be working on Brecht's twin piece, *The No Sayer*. Both the opera and the play will be presented in Tel Aviv and in Dimona. This unique project is sponsored by the Weill Foundation and Yad Hanadiv, and is under the direction of **Dr. Michal Grover-Friedlander** of the Buchmann-Mehta School and Noa Raban Knoler of CultureLab Dimona.

- **The Galilee hills are alive with the sound of music**

In a cooperative effort, the Buchmann-Mehta School of Music (Arts) has embarked on a project to bring music to the Galilee region and encourage youngsters to become future students of music at TAU. Initiated by the school's Honorary President, **Zubin Mehta**, together with Bank Leumi General Manager Galia Maor, the *Mifneh* ("Turning Point") project involves TAU, the Zubin Mehta Program for the Cultivation of Multicultural Musical Leadership in the Central Galilee Region, the Jezreel Valley Arts Center and the Israel Philharmonic Orchestra. The project promotes musical instruction in schools in northern Israel with support provided by leading teachers of the Buchmann-Mehta School as well as by members of the Israel Philharmonic Orchestra. Further aims of the program are to create an ongoing dialogue between Jewish and Arab youth based on musical and artistic cooperation, to cultivate young champions of music, and to create a bridge between these musical leaders and their communities. The project is sponsored by Bank Leumi; the Arab Israel Bank; the Marc Rich Foundation for Education, Culture and Welfare; and Scottish and English Friends of TAU. A significant portion is funded by an anonymous donor.

Using drama, humor and a culturally-sensitive approach, TAU researchers created special informative materials for Ethiopian immigrants for navigating – and making full use of – the Israeli healthcare system.

Nurturing young scientific minds

Faculty and students from Exact Sciences have joined TAU's community enrichment drive with gusto. Here are a few of their programs:

- **"The Wonders of Chemistry"** brings scientific and technological thinking to 9th graders with the aid of a portable demonstration lab developed by the Raymond and Beverly Sackler School of Chemistry. The goal is to reach 4,000 students and 120 teachers annually.
- **Stargazing –** Faculty members of the Raymond and Beverly Sackler School of Physics and Astronomy visit high schools in underprivileged areas, delighting their audiences with lectures about astronomy, while graduate students continue to run the popular TAU Astroclub, organizing free public lectures by top scientists and the opportunity to stargaze through telescopes on the TAU campus.
- **Teaching computer skills –** In a project initiated by **Prof. Dan Halperin** and **Dr. Lior Wolf** of the Blavatnik School of Computer Science, up to 40 undergraduates attend an academically accredited course for teaching computer skills in the community, and then spend two hours a week teaching 13 to 15 year-olds at their schools around the country.
- **Earth science – Dr. Eyal Heifetz, Dr. Nili Harnik, Dr. Ran Bachrach and Prof. Shay Zucker** of the Department of Geophysics and Planetary Sciences developed a series of lectures for teaching high school students Earth System science – how everything from earth to sky interacts as a system, and how physics, chemistry, math and computer science are all required to explore such issues as climate change, tsunamis or earthquakes.

- **TAU pioneers the President Peres Youth Program**

Coordinated by the Dov Lautman Unit for Science Oriented Youth, and under the academic guidance of steering committee heads **Prof. Shimon Yankielowicz**, TAU Pro-Rector and the incumbent of the Dr. Teodoro Jack and Dorothea Krauthamer Chair in Physics, and new faculty recruit **Dr. Uri Nevo** (Engineering), TAU is serving as a pilot site for the new President Peres Youth Program, which is aimed at nurturing Israel's future scientists and inventors. Teenage students fully participate in exciting academic courses and research. Slated to become a national program, other institutions will emulate and adopt the model developed at TAU.

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