Exploring the neurobiology of language production and comprehension

How painful is pain?
Individuals with sensory modulation disorder (SMD), particularly with the subtype known as sensory over-responsivity (SOR), are liable to demonstrate abnormal responses to naturally occurring stimuli in a manner that interferes with daily life. For example, they experience pain where others would not, and often react defensively. To find out why, Dr. Tami Bar-Shalit (Health Professions), who is currently establishing a new lab, conducted the first study of its kind investigating perception of pain in SOR subjects. The study sheds light on the unique patterns and diverse ways SMD individuals process pain compared with control groups.

How we decide to decide
Fresh from two years of post-doctoral studies at University of California, Berkeley, new faculty recruit Dr. Ayala Arad (Management) combines economics and psychology to better understand how people make decisions. Studying the psychological aspects of decision-making, including how people form beliefs and how past decisions affect future choices, Arad identified a new model of behavior. She proposes that, although decision-making deviates from economic models of behavior, it does so systematically, in a reasonable and predictable manner.

Targeting the most complex research frontier—the brain
About 20% of all human medical conditions are associated with neurodegeneration or poorly understood progressive changes in the brain. To meet the need for further research, TAU has established on campus the Myers Core Facility for Neurodevelopmental, Neurodegenerative and Neuropsychiatric Diseases: Prevention, Diagnosis and Treatment. The facility will advance research and graduate student training, as well as provide services to drug companies. Aimed at strengthening collaboration across disciplines, the Myers Core Facility will function in cooperation with the Adams Super Center for Brain Studies and the Sagol School of Neuroscience.

Language sciences—Key to understanding cognition
The Lester and Sally Entin Faculty of Humanities, Department of Linguistics and Program of Cognitive Studies of Language and Its Use have together established the Center for Research of Language and Cognition. The center’s interdisciplinary group of scientists work at three labs: The Neurobiology of Language Lab is headed by Dr. Ora Peleg, who aims to identify the cognitive and neuroanatomical basis of linguistic competence in the adult brain; the Language and Cognition Lab, headed by new faculty recruit Dr. Orna Peleg, is designed to explore the underlying processes of real-time language comprehension and production; and the Phonetics-Phonology Lab, headed by Dr. Evan-Gary Cohen, collects and compares data from a range of languages.

The philosophy of an art critic
PhD candidate Pioter Shmugiakov (Humanities), a published poet in Russian and Hebrew, combines philosophy and the arts by focusing on philosophical aesthetics and the methodology of criticism. In his doctoral research he attempts to reconcile Heidegger’s idea of art as an event characterized by the revelation of a universal truth, with the Kantian tradition of aesthetics as subjective perception. The two approaches, he argues, come together in the groundbreaking interpretations of Hollywood genres by American philosopher Stanley Cavell. Pioter points out that although a Kantian thinker, Cavell finds in the Hollywood films something compatible with Heidegger’s approach.

Inside the Mind
• Targeting the most complex research frontier—the brain
• How painful is pain?
• How we decide to decide

Inside Society
• The multi-layered identity of immigrants
• The philosophy of an art critic

Advancing more efficient and sustainable modes of transportation

Promoting affordable housing
The Buchmann Faculty of Law established the Affordable Housing Program with the aim of advancing academic research, policy change and grassroots initiatives in Israel’s housing sector. The program’s interdisciplinary mix of experts from law, economics, planning and community development are identifying Israel’s housing needs and offering strategies to promote an all-inclusive housing policy. Under the direction of attorney Ora Bloom (Law), the program is generously funded by the Charles H. Revson Foundation & the David and Inez Myers Foundation.

Transporting us to better transportation
Joining the global effort to devise more sustainable and efficient transportation systems, the Department of Geography and the Human Environment has founded the Transportation Research Unit, to be headed by Dr. Moshe Givoni (Social Sciences) points out the extra environmental impact of the sector. The unit will focus on transportation and mobility, with an emphasis on understanding the social, economic and environmental impact of the sector. The unit also aims to take an active role in the public debate on transportation policy.

• The multi-layered identity of immigrants
• The philosophy of an art critic
Changing Perceptions

- **Transformation of the public sphere**
  In a joint research project between TAU and Monash University, Melbourne, Australia, Dr. Eran Neuman (Architectural) and Prof. Andrew Benjamin and Dr. Noa Shenker of Monash, is examining the effects of today’s digital technologies on how we perceive space and architecture. Aiming to develop a new way of looking at the public sphere, Neuman will examine how interactive environments and technologies, such as augmented reality, bio-scanning and digital mapping, are reshaping relationships between the personal and communal, private and public, physical and virtual.

- **Regional perspectives on the news**
  New faculty recruit Dr. Sandrine Boudana (Social Sciences), a former Fulbright Scholar at NYU, studies journalistic norms and practices – especially those of war correspondents and photojournalists – from a comparative, cross-national perspective. She is collaborating in “Worlds of Journalism,” a research project comparing journalistic cultures in 70 countries. By examining the hypothesis that French journalism is more opinion oriented than its fact oriented American counterpart, Boudana’s study will attempt to determine whether the traditions of the French journalistic ethos are still influential today.

- **Life outside the psychiatric ward**
  Under the joint supervision of Prof. T. Krupa of Queen’s University, Canada, and Prof. Moshe Kotler (Medicine) of TAU, Dr. Lena Lipskaya-Velikovsky (Health Professions) developed an intervention program designed to help patients hospitalized with mental health conditions improve their everyday functioning and integration into the community after discharge. Her work, lauded as “outstanding” by the 21st European Congress of Psychiatry, has led to collaboration with the Canadian Occupational Therapy Association. Boudana’s study will attempt to determine whether the traditions of the French journalistic ethos are still influential today.

Enhancing Human Health

- **Improving recovery of heart valve-implant patients**
  Dr. Vered Padler-Karavani (Life Sciences) heads the collaborative efforts of five laboratories from Israel, Sweden, Spain, Italy and the USA, all part of Translink, a European consortium with 13 partners from 7 countries that is examining immune reactions in patients receiving bioprosthetic heart valves. Having recently joined TAU from the University of California, San Diego, where her post-doctoral work focused on the immune system and its response to sugars, Padler-Karavani has established a new Laboratory for Glycoimmunology, immunology, bio-nanotechnology and cancer research.

- **Hold those drugs!**
  Based on the prevailing view that large protein aggregates in the brain are the cause of toxicity in neurodegenerative disease, drugs are being developed to stop their formation. According to groundbreaking research by Prof. Gerardo Lederkremer (Life Sciences), published in collaboration with Prof. Ulrich Hartl, Max Planck Institute for Biochemistry in Germany, such drugs may be more detrimental than helpful. Studying Huntington’s disease, Lederkremer found that toxicity is due to a protein involved in the process of aggregation, rather than to the aggregates themselves, which in fact serve to protect the brain. This discovery could be applicable to the development of new therapeutic approaches to Alzheimer’s and Parkinson’s.

Better therapy for visual impairment

The VISION project, initiated and coordinated by Prof. Arieh S. Solomon (Medicine) and funded by a large European grant, involves a consortium of 5 partners from Israel, Germany and Spain, working to develop a new therapy for glaucoma and other eye diseases involving the death of vision-related nerve cells. Solomon’s team identified a protein (Sema3A) responsible for inducing neuron cell death, and demonstrated that an antibody against this protein inhibited further death of the relevant nerve cells. Based on this discovery, the new, more effective therapy will involve a minimally invasive implant for controlled release of the therapeutic substance.
Overcoming Barriers

• Seeing beyond sight
  Under the tutelage of Dr. Peter Harris (Arts), theater students engaged in a creative encounter with the blind and partially-sighted community. Discussions held at Tel Aviv’s Center for the Blind over a nine-month period became the basis of dramatic performances. The experience served to break down expectations and stereotypes for both the seeing and non-seeing groups. Audiences, for their part, were challenged to confront their own prejudices when they could not distinguish sighted from blind performers in the fast-paced flow of scenes, monologues, songs and dance routines of the shows.

• Occupational Therapy gives a helping hand
  As part of students’ fieldwork, the Department of Occupational Therapy at the Stanley Steyer School of Health Professions has diversified its training to meet the needs of at-risk populations. Students impart computer centers, children of foreign workers and refugees, patients at rehabilitation centers, and at-risk youth. Students impart computer centers, children of foreign workers and refugees, and at-risk youth. Students impart computer centers, children of foreign workers and refugees, and at-risk youth. They impart computer centers, children of foreign workers and refugees, patients at rehabilitation centers, and at-risk youth. They impart computer centers, children of foreign workers and refugees, patients at rehabilitation centers, and at-risk youth.

Community

Bringing TAU to High Schools

• A yellow brick road to TAU
  “Paths to the University” is a TAU flagship program led by the Social Involvement Unit at the Ruth and Allen Ziegler Student Services Division. Its aim is to motivate junior and senior high school students from greater Tel Aviv’s less privileged areas to enter the academic world. This past year, 50 faculty members along with 133 TAU student mentors introduced 1,670 youngsters to the TAU campus and academic fields of study. Following their participation, 75% of the youngsters said the experience motivated them to aspire to higher scholastic achievement, while 77% of the TAU students said the program encouraged them to continue working toward social goals.

• Want to be a doctor?
  “Window on Medicine” is an educational program established by Prof. Ilan Tsarfaty and Dr. Miriam Shaharabani (Medicine) in collaboration with the Ziegler Division’s Unit of Social Involvement and the Netivot city council. Selected high school students from Netivot, Tel Aviv, Ramla and Bnei Brak take part in a special course at TAU that introduces them to medical science with the aim of encouraging their continued academic study. Now in its second successful year, the program has prompted the opening of a new matriculation program in medicine for Netivot high school students.

Offering an insider’s view of the medical field to high school students

Getting law student volunteers involved in shaping Israeli legislation

Promoting Dental Health

In today’s reality of limited budgets for healthcare services, the Maurice and Gabriela Goldschleger School of Dental Medicine embraces its social responsibility to provide services where needed.

• For the elderly: In a collaboration between the Department of Prosthodontics headed by Prof. David Kohavi and the Tel Aviv-Yafo Municipality, an innovative graduate program in the final stages of preparation will produce specialists in geriatric dental care, while also offering free dental services to Holocaust survivors and other groups.

• For the young: The Department of Pediatric Dentistry headed by Prof. Benny Peretz, in collaboration with the La Sova organization for Social Involvement, dental students made several visits to a religious girls’ high school in Kfar Saba, providing oral hygiene education and dental care equipment to recent arrivals from Ethiopia. These services are supported by funding from the Alpha Omega fraternity, which helped found the School of Dental Medicine and continues to provide it with support.

Power to the People

• Promoting involvement in government affairs
  Dr. Daniel Dor (Social Sciences) is the co-founder of The Social Guard, a national civic involvement organization that has been cited as one of Israel’s most influential non-partisan organizations. Its aim is to make government more transparent and accountable to citizens. It achieves this by sending volunteers to Knesset (parliament) committee meetings and informing the public about pertinent issues through the organization’s website and Facebook page. Over a two-year period, volunteers have reported on 1,300 meetings, igniting public discussion and media interest.

• Law students advise the government
  The Omek Center was founded by TAU law students seeking to shape legislative processes, from decision-making and policy development to the actual wording of legislation. Over 120 members from TAU as well as other leading academic institutions act as legislative analysts and advisors to members of Knesset on matters of research and law. Through harnessing the personal and professional abilities of its members, the center promotes public goals in the fields of education, health, welfare, science, environment and more. The center is also advancing contact with law students abroad with the hope of creating a young multinational legal community working to improve society.