

NEWS FOR A BETTER WORLD

SCE | Shamoan College of Engineering | Issue 59 | February 2025



Student delegation from Dept. of Visual Communication returned from Tokyo full of new experiences, pp. 6-7

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A WORD FROM THE PRESIDENT



The first semester of the academic year 5785 (fall 2024), which began as usual, is already behind us, and we send our best wishes for the success of all the students currently amid the exam season.

Many of our students and faculty members are still being called-up for long stints of I.D.F. reserve duty and the College is extending them a helping hand by offering them broad academic support, helping them to bridge their learning gaps and to successfully complete their studies.

In addition to the academic studies and research, throughout this semester, we held a variety of activities in the spirit of communion with the Negev and its residents. The first course in the SCE program - the "Scientific Academy for Young People" - got under way with 30 excellent high-school students from Ofakim, and the SCE School of Architecture held a conference intended to promote regional thinking in Negev development.

Recently, several SCE researchers were awarded Naim Foundation grants, attesting that our investment in research and development is paying off. Meanwhile, we continue to allot many resources for research, upgrading teaching tools and laboratories, enriching the libraries, and varies types of student support. Our graduates quickly join the ranks of the employed, being on high demand and are well compensated - attesting to the College's success in providing its graduates with a significant head start in the job market.

Prof. Semyon Levitsky
SCE President



Four SCE researchers won esteemed grants

It is always a happy occasion when SCE researchers are awarded research grants by the Naim Foundation. This time it was especially so - when the winning researchers come from a variety of departments from both campuses.

Our first winner is Dr. Meirav Topol, from the Mathematics Unit on the Ashdod Campus, who was awarded a three-year grant by the German research foundation, DFG (Deutsche

SCE researchers from both campuses were recently awarded prestigious research grants, emphasizing the great value that SCE places on excellence in research

Forschungsgemeinschaft), together with Prof. Michael Detweiler from the University of Bayreuth in Germany, and Prof. Eugenii Shustin from the University of Tel Aviv, for their joint study on: "Topological methods and invariants of curves and areas."

Our second winner from the Ashdod Campus is Dr. Vladimir Frid, from the Department of Civil Engineering, who was awarded a three-year grant sponsored by the Israel Ministry of Science and Technology - 482,080 NIS - for "Research on the use of flint as a substitute for basalt in asphalt mixtures."

In addition, a shared award was granted to the Head of the SCE Department of Civil Engineering on the Be'er-Sheva Campus, Dr. Dagan

Bakun-Mazor, and Dr. Isaac August, from the Department of Electrical Engineering and Electronics. These two also received a three-year research grant funded by the Israel Ministry of Science and Technology, totalling 499,800 NIS, in support of their research on "Sensing the identification of mechanical properties and the degree of compaction of soils and aggregates by means of hyperspectral systems and polarized signatures."

SCE is proud of these awards, which highlight the great value we see in research excellence. We wish all our academic faculty members success in their research endeavors and, of course, in their teaching.

A WORD FROM THE RECTOR



The State of Israel is at a complex and challenging intersection. Many of us have been asked to muster for service in the I.D.F. Reserves and to take on the heavy burden of this great responsibility. Reservists are not only soldiers - they are students, workers, family members; and war is not merely a matter of security - it's an experience that rattles the family and all of us. It is vital to remember that academia is not somewhere one only acquires knowledge - it is also where we build our futures: our personal future, that of our society, and of our State. In the present era, enlightened education, knowledge and expertise are not luxuries, rather the foundations upon which a stable, advanced society exists.

In an ever-changing, developing world, facing the many challenges that require novel, advanced technological solutions - you are the future generation of Israel, who will lead those developments and produce the solutions to create a better world. The post-war world, like the previous one, will more strongly demand of us to be prepared, proficient and equipped with skills and knowledge.

Dear students, today we are commanded to study and to become influential: to promote knowledge and innovation, to strengthen the academic world, and above all - to believe in our own power to build the future. With enterprise, daring, and creativity, and with a sense of commitment and setting personal examples - every student, every lecturer, every researcher count in the generation that will construct that better future.

I wish that each and every one of you will continue his/her studies and personal development, and hope that you will never stop believing in your ability to affect our collective future.

Professor Judah Haddad
SCE Rector

The keys to the restoration of the Negev and building the future

The SCE School of Architecture hosted a conference promoting regional thinking to stimulate ideas for the creation of coworking spaces. “We must rethink and redesign what we want to live in, now and in the future,” said the Head of the School of Architecture, Dr. Natanel Elfassy

After more than a year since the catastrophe that occurred on October 7, 2023, which left the western Negev wounded and destroyed in part, many cries have been heard about the rebuilding and rehabilitation of the region. Naturally, doing so requires deep, multi-disciplinary consideration regarding the needs of its inhabitants, as well as the obligatory conservation of the local environment, heritage and identity.

On November 6, 2024, SCE’s School of Architecture hosted a

conference dealing with the subject of ‘regionalism’, intended to promote regional thinking and to place it at the head of the Negev Region’s agenda. This conference was graced by the presence of Be’er-Sheva’s Mayor, Ruvik Danilovich, and the Mayor of Dimona, Benny Biton.

The principles of regional thinking were discussed and how it could create a firm basis for Negev development. Keys questions regarding Negev regionalism arose, such as - What advantages does regional government

in the Negev offer? How does one plan a city meant to serve as a regional capital by creating coworking spaces, social and political?

Lectures and panels were interspersed throughout this conference, in which experts from a various fields participated, such as government, regional economics, and urban and environmental planning. In the workshops, participants raised their ideas for cooperative regional action, alongside presentations of innovative models for Negev leadership towards

a self-sustaining Negev.

Mayor Danilovich said, among other things: “A local authority that wants to succeed, or a country that wishes to succeed, must let go - must allow those who can imagine to run and aim high, to enable the leadership of initiatives that generate change. The Negev isn’t the problem of the State of Israel, but rather the solution, and you, the students, are becoming a very crucial resource for the Negev’s future and the future of the world.”

Mayor Biton stated that: “As heads

of local authorities, it is very important for us to develop housing and employment. After October 7, I understood that it is also possible to bring high-tech to Dimona, to Yeruham, to Ofakim, and to the entire Negev Region, as has been done in Be’er-Sheva... We’re not competing with each other - we’re helping one another.”

Dr. Natanel Elfassy, said: “This is the fourth year since the establishment of the School of Architecture. As the time passes, and in this time

of war, we understand that the Negev is becoming more than just a school - it’s transforming into a regional educational center, a living environment, and a developing ecosystem. We must rethink and redesign how we want to live here, now and in the future. We need cultural robustness, one that integrates local traditions, regional resources, and global openness; naturally, we are hopeful that our architects, when they leave us, will lead great projects in the big, wide world.”





An experience in Tokyo

The course “Shared campus” of the SCE Department of Visual Communication is meant for 3rd-year students (juniors) and focuses on the principles of magazine design, including contents, design, spread, and formatting to suit the targeted readership. This year, the course also conducted a cooperative project engaging four schools of design from across the globe, initiated by the Zurich University of the Arts (ZHdK), along with:

Shamoon College of Engineering (SCE)
Tokyo University of the Arts
Hong Kong School of Creative Media.

The project consisted of an exchange of subject-matter (contents) between the students from the four schools, zoom sessions, and the design of magazines based on the materials they received. The core topics had international relevance and were clearly focused on transcultural subjects and interdisciplinary cooperation.

The initiative for this project had been planned in Tokyo, Japan, but had been temporarily delayed due to the academic boycott on Israel. Nevertheless, it was decided to have the planned student

tour, meant to expose the participants to the rich Japanese culture and to create significant dialogue between the those participating in project.

The eight SCE students who participated in that tour were all students in the course who had been chosen by means of a meticulous and objective process, stressing criteria such as high grades, letters of recommendation and motivational letters.

With the generous sponsorship of the Israeli Embassy in Tokyo, we succeeded in building a suitable plan, with lectures and workshops, and we offered the participants on the tour a rich and thrilling experience.



The Head of the Department, Ms. Nino Biniashvili, spoke about this special visit: “We received a warm welcome at the Israeli Embassy, and in Tokyo, we were made to feel at home - it was quite exciting. We met with the Assistant Ambassador (Charge d’affaires), Asaf Segev, who told us about the Embassy’s work and Israeli-Japanese relations. The Diplomatic Attaché, Mor Riklin, described her activities, together with Mor Eliyahu, the Spokesperson for the Tokyo Embassy, also responsible for local community relations. In addition, it was very enriching to hear from Miyuki-San, who has been promoting cultural and artistic communication between our two countries over the past 34 years:

A student delegation from the SCE Department of Visual Communication enjoyed an outstanding cultural and educational experience in Japan’s capital.

“The effort and investment put into this visit was well felt - the planning was meticulous, the Embassy staff felt it was important to give us a professional experience, enjoyable, and respectable.”

Later, the students participated in a workshop with the Japanese artist, Ms. Makoto Tanaka. The session with Tanaka was especially meaningful. Despite the language barriers, and thanks to the professional translations, the SCE students were exposed to unique design practices and had a chance to try a wide variety of techniques.

Our students also met with Dr. Erez Golani Solomon, a [senior] lecturer at Bezalel [Academy of Arts and Design], who has also been teaching at the University of Waseda (in Tokyo) for about 20 years. Erez invited them to the University, where he lectured on Japanese culture and design, and gave a guided tour, during which he exposed the students to Tokyo’s history and the development of its urban landscape, while comparing it to traditional Japanese prints.

The students also visited three select museums and, in conclusion, they met Yuri Klebanov, in his DLX Design Lab Tokyo. Within the framework of his trip, the students witnessed cooperative projects by a variety of designers and researchers from diverse fields, such as Virtual Biology and the conservation of both culture and nature.

Ms. Biniashvili summarized their feelings at the conclusion of this tour: “It was an outstanding opportunity that gave us all much inspiration.”

Join the future generation of renewable energy!

On SCE’s Ashdod Campus, a “Green Cell” was recently launched in hopes of deepening awareness of the world of renewable energy and environmental innovation, and to enlist SCE students to lead the vital change in the Israeli energy market.

On SCE’s Ashdod Campus, a “Green Cell” was recently launched to reveal the world of renewable energy and environmental innovation to the students. This Cell will deal with advanced technologies and energy sources, such as: solar, hydrogen, hydroelectric, wind, nuclear, and others.

This is a groundbreaking initiative, spearheaded by Yogev Gal, a 4th-year (senior) student in the Department of Mechanical Engineering on the Ashdod Campus and founder of the “Green Cell,” in conjunction with the Israeli EnergyTech Community - “Ignite the Spark.” This Community brings together industrialists, students, and entrepreneurs in the field of Energy, creating a platform for the sharing of knowledge and cooperation towards a greener world.

At the inaugural event, Dr. Gideon Friedmann, CTO of NetZero Technology Ventures and former Chief Scientist at the Israel Ministry of Energy, reviewed

the main challenges and directions in the field of renewable energies, saying: “The Israeli energy market must undergo a conceptual change if it is to become clean and self-sustaining - founded on renewable energy sources, using fuels as backup. Such a process, based on digitalization and innovation, will be beneficial to the Israeli economy and the energy security of Israel and the environment.”

Ms. Dror Bernstein, an expert in energy technologies, spoke about the importance of innovation and the economic opportunities in the field. She stated: “Big payoffs may be found where there is regulation, technology, and investments - merging to build a competitive market, profitable, and with a low carbon footprint.”

The “Green Cell” wants to enlist additional students to participate in its activities and various events, in hopes that it will become a part of the future generation, leading the significant change in the Israeli energy market.”



Sign language for all

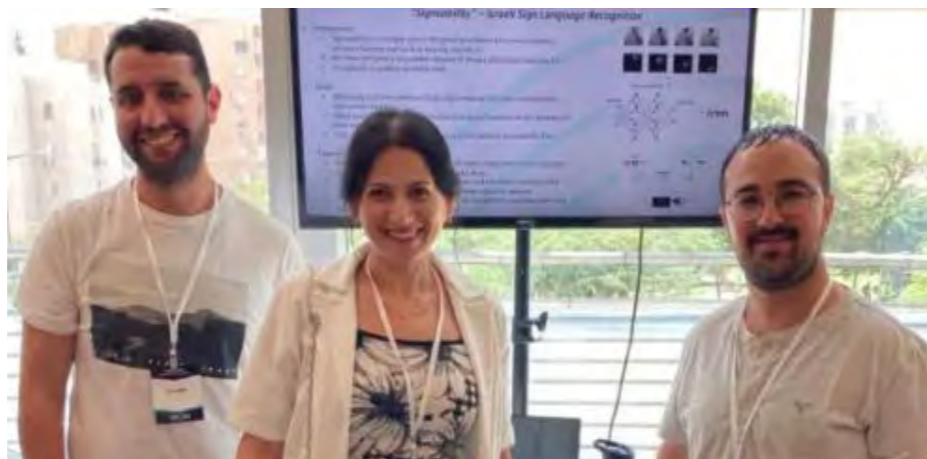
“I was sorry that I was unable to hold a basic conversation with my neighbor - to ask him: ‘How are you?’ or to wish him: ‘Good morning,’” said Din Ezra, a graduate of SCE’s Software Engineering Department, regarding his motivation to develop “Signsability” - a system that teaches and translates the Israeli Sign Language (ISL or ‘Shassi’), developed by Din together with Shai Mastitz. “Signsability” is meant to reduce communication gaps between the hearing-disabled population and the Israeli general public

“Signsability” is a groundbreaking system for learning and translating Israeli Sign Language (known as ISL or ‘Shassi’), developed by two SCE students in the Department of Software Engineering to reduce communication gaps between the Israeli deaf/hard-of-hearing population and the general public in Israel by making the learning of ISL accessible to everyone, more user-friendly.

This system uses advanced machine learning technologies and image processing to provide users with real-time feedback regarding the precision of their gestures. Similarly, in accordance with data gathered by the project team and verified by volunteers fluent in Shassi - this system promptly translates words signed in ISL into written language (Hebrew), with an impressive 91% precision in word recognition.

“Signsability” was developed by SCE graduates, Din Ezra and Shai Mastitz, within the framework of their final B.S. degree project in the Software Engineering Department. Their mentor for this project, Dr. Irina Rabaev, is an expert in computer vision and image processing. An academic article that they wrote together was published in MDPI’s scientific journal, *Software* (2024, 3(3), 368-379).

The goal of their initial project was not merely to teach ISL, but also to make that

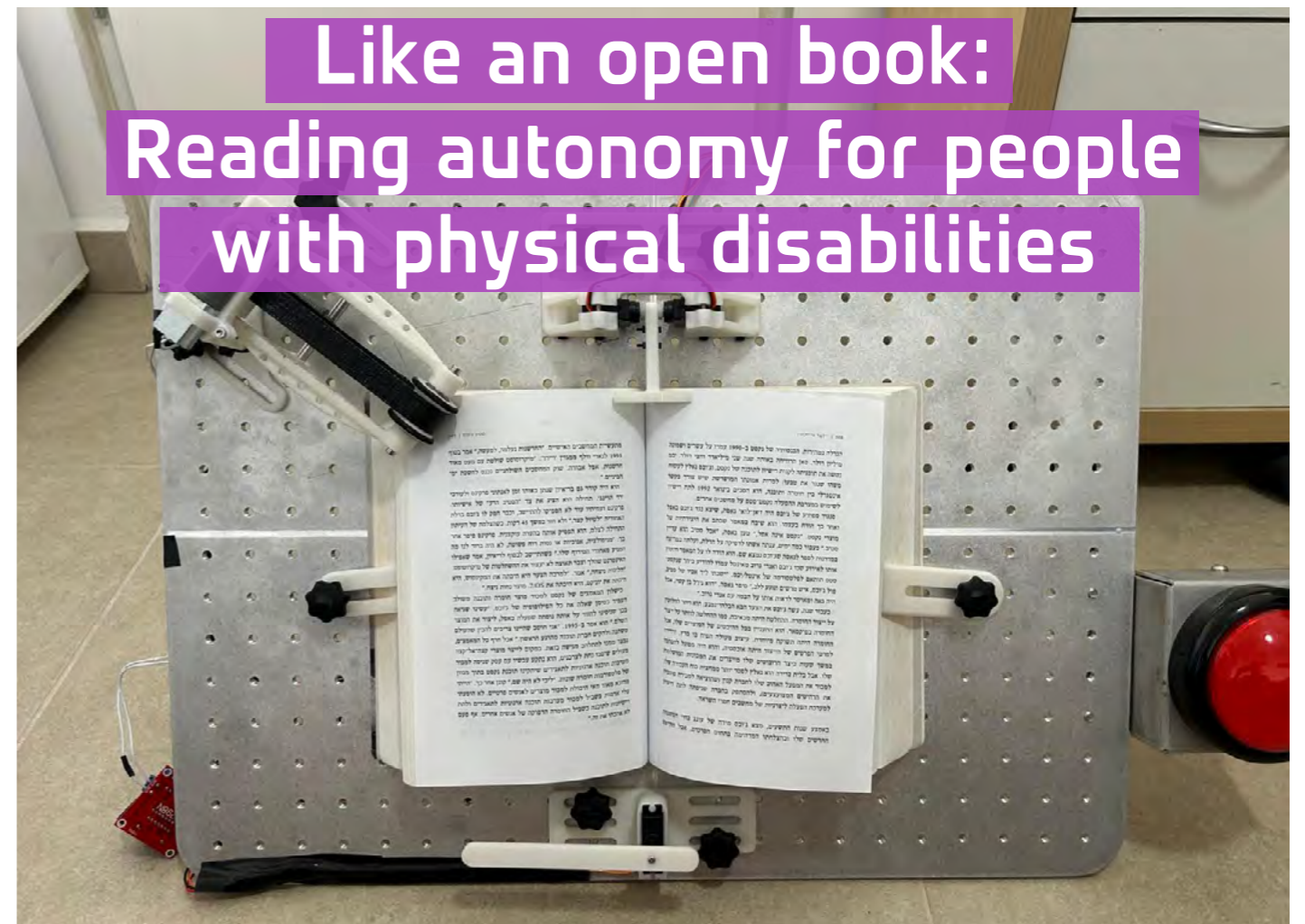


learning process more accessible to all kinds of individuals. Today, “Signsability” can identify 18 different words, and the team continues to work towards expanding that capacity to encompass a much larger lexicon. Ultimately, accounting for the unique laws of ISL syntax, this system would also be able to translate entire signed sentences into written text.

Din recalled: “I first encountered this subject four years ago when I was living across from a neighbor, who was hard-of-hearing from birth. Every now and then, when I heard noises and knocking coming from the electric fuse box in the corridor, I understood that he needed help with his electricity meter. He was illiterate and was having trouble inputting the correct numbers and restoring his electricity by himself. After I helped him, he used

to sign his thanks to me. Sadly, I don’t know ISL, so our communication always ended with my improvised pantomime. I regretted my inability to have even the most basic conversation with him, to ask him: ‘How are you?’ or to wish him: ‘Good morning’. From these incidents came my important realization that learning sign language should be easier and suited to the general population.”

Shai added: “When I was a middle-school student, several hearing-disabled youngsters, with different degrees of disability, were integrated into my class. Over time, significant communication gaps were revealed, making it hard for both sides. That’s what sparked my understanding that it’s important to reduce those difficulties by improving the ISL learning process to promote broader use by the Israeli public.”



Like an open book:
Reading autonomy for people
with physical disabilities

A reading aid that turns the pages of a book for people with physical disability of the upper limbs has been developed by graduates of the SCE Department of Mechanical Engineering, following the advent of the war, which greatly increased the number of physically disabled - thus, a very important device.

Ori Bitton and Yair Ben Tolila, graduates of the SCE Department of Mechanical Engineering, answered the call to help people with upper limb disabilities by developing a device that turns book pages. This innovation is especially significant in the wake of the war being fought this past year, which greatly increased the number of physically disabled soldiers and citizens.

This project, under the guidance of designer Naama Agassi, was conducted jointly with the “Tikkun Olam Makers” (TOM) non-profit organization that works to create technological solutions for people with disabilities.

The novel system developed consists of a modular trivet and three primary mechanisms: one that secures the book to the trivet; a second that initially lifts the page of the book; and the third that turns the lifted page. This device is suited to victims of strokes or accidents, who have difficulty performing fine motor skills.

Bitton and Ben Tolila recount that: “The idea for the development of the device arose due to the need to help disabled people read books independently. Today, there is no good solution that is suitable for this population. Even in the age of digitized books, there are books, like religious and philosophical works, for which digitized versions still do not exist.



Ori Bitton (on the right) and Yair Ben Tolila and the page-turning device (above)

Moreover, the act of reading a physical book provides a different, valuable sensation and experience.”

SCE's I.D.F. reservists

No one imagined that the campaign which began on October 7, 2023, would last so long - but our reservists are still there. SCE students, called to duty, recount the challenges of warfare and lengthy service, as well as the warmth and assistance they receive from the College and their colleagues. "Our reservists, Part 3"



"Don't forget that the reservists are still coping with their battle scars!"

Michael Lugasi, a 2nd-year (Sophomore) student in the Department of Electrical Engineering and Electronics on the Ashdod Campus, served for 167 days in I.D.F. Brigade 551, active in the Gaza Strip. Immediately afterwards, he began to close the gaps in his academic studies.

He had donned his uniform on October 7, 2023, and prepared his go bag even before the phone rang, calling him to muster. For 107 days, he and his buddies were responsible for the logistics and supplies of those military companies - meeting all the fighters needs. "We entered the heart of Gaza during the night hours, time after time. At the start of the Gaza War, many citizens opened their hearts and pockets, and even the I.D.F. did whatever was necessary to ensure that the soldiers got the most professional and advanced

equipment."

Michael admits that, in the beginning, there was a state of denial. "A young man my age doesn't think about the consequences. You find yourself repressing it and just doing the missions with lots of faith and motivation towards the target outcome. What helped me during those days was the thought that there's someone protecting me. Those who serve in the Reserves are not a machine you can simply turn on an off. We had to cope with the horrific sights and Job-like bad news that accompanied us over time. It turned out that, although two days prior to the beginning of the new academic year, I was still on active duty in uniform - on the first day of studies, I was actually on the SCE Campus! This is a sharp transition - from the experience of being part of a cohesive military brigade, in which everyone is concerned about his buddies, and we all fight together, and

cope with loss together - to an 'academic mindset' for learning, while your brain and soul have not yet managed to cope with the stress. In such a situation, you find it very hard to concentrate and keep up the pace."

By the time Michael had succeeded in regaining his study routine, he was called-up again - and that happened during the exam period. Of course, this was a setback. "However, in the end, this is our country and we must do what we must to protect it. I'm proud of what I've done, and I also appreciate all the help I received from the College. I call upon the heads of the departments and the members of the faculties - Don't forget that the reservists are still coping with their battle scars! When you hear harsh news every day, experience the loss of buddies from the Brigade, and the sight of all types of incidents are etched in your memory - they don't fade quickly."

"At the peak of progress on my thesis, I use every free moment to log onto my computer, even in the field."

Mark Tzibulsky (40) has a B.S. from SCE in Civil Engineering and is currently an M.Sc. student in Green Engineering, while working as an Instructor in the Department of Civil Engineering on the Ashdod Campus. He served in the Reserves for over 210 days and was recently, urgently recalled by an "Order 8" notification.

Most of the time, Mark served in the Gaza and Gaza Envelope sectors, and for 60 days, he was also active on the frontline in Samaria, making arrests, doing reconnaissance and guard duty. "As soldiers in a Regional Logistics Company, our primary mission was to assist and secure the emergency/rescue medical teams caring for the wounded in the field and evacuating them, by ambulance or helicopter. I was glad for their speed and professionalism. All the evacuations in which I participated were successful and saved many lives."

"Moreover," Mark added, "we're responsible for safeguarding the I.D.F. Reconnaissance and Retrieval forces that respectfully evacuate the bodies of fallen soldiers. Since I'm known for my restraint and keeping cool, I was assigned the task of preventing others from approaching the recovered bodies prior to their final identification. In such a sensitive situation, not everyone knows how to tell friends and commanders, who come in a state of emotional turmoil, that they must maintain a certain distance and patiently wait for the completion of the evacuation process."

In the midst of his M.Sc. degree studies, Mark tries to maneuver between his academic obligations and his Reserve duty. "I'm very lucky that one course was transferred to Zoom, so I succeeded in completing it. Now that I'm at the crux of the work on my Masters' thesis, I take advantage of every free moment to log onto my computer, even in the field." He hopes to complete his thesis soon and then to begin his doctoral studies. Mark does not forget to thank his mentor, Dr.



Vladimir Frid, who is accompanying him and providing moral support. "Dr. Frid is always available to answer questions and offers to assist me with every problem. He helped getting our article published while I was on Reserve duty. I always feel he's got my back. This is my opportunity to thank him for his concern and accompaniment. I also wish to thank my academic colleagues - Osher, and Agnessa, and Moshe Greenberg (a fighter and an officer, also on Reserve duty) - who have helped me with everything that came up. There's no replacing good friends who provide support and help, especially during such a complex period. Without them, I wouldn't have succeeded.



"As long as my team is in, there's no way I'll stay out."

Tzuriel Gabay, a 4th-year (senior) student, in the SCE Department of Mechanical Engineering, on the Be'er-Sheva Campus, together with his friends, have witnessed harsh scenes of charred vehicles, the corpses of terrorists, and the bodies of Israeli civilians, who were cruelly murdered. Tzuriel recounted: "In the evening,

while searching for two terrorists, not yet located, we discovered one of their corpses on the ground between some bushes, as the other one was attempting to cut the throat of an I.D.F. soldier, who was talking on his mobile phone. He [the terrorist] was sneaking up from behind [the soldier], yelling "Allah akbar!" [God is great!]. Very luckily, the soldier was only scratched and succeeded in shooting the terrorist." Later, Tzuriel and his buddies did reconnaissance at the southern military R & D station, where seven soldiers had been murdered and one soldier taken hostage."

For Tzuriel, who did reserve duty for five months, each rock is a flashback and each room a memory. At the time of one of the most harrowing incidents, when his buddies had to vacate the corpses of 21 soldiers killed underneath collapsed buildings, he had unknowingly been on campus, on a short leave, so he could attend some frontal lectures. "All those who had fallen had been reservists killed

by anti-tank rockets, fired while they were inside those buildings, preparing them for demolition. I was urgently recalled and saw my buddies returning from that site, looking like ghosts. They had seen horrible sights. Luckily, they're aware of the importance of getting psychotherapy."

But how do they bridge their study gaps after such a long absence? During Tzuriel's last two months of active duty, he succeeded in juggling his studies and tours of guard duty. "One week, I studied via Zoom, the next week, I attended frontal lectures... I scheduled my guard duties between the Zooms and the classes. The scholarship I was granted by the Dean of Students took some pressure off me and gave me a sense of security - it's very much appreciated. In addition, the special dispensations granted to student reservists were very helpful during the first semester; in the second semester they were mostly less effective."

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“I knew I was amassing gaps in my studies, but there, I was needed more.”

Ilushva Nachshonov, a 1st-year (freshman) student in the SCE Department of Civil Engineering on the Ashdod Campus, never imagined that, after only a year of academic preparatory studies, she'd begin her B.S. studies in such an unexpected manner. “Who'd have thought that, instead of the long-awaited Bachelor's studies, I'd find myself donning an I.D.F. uniform and holding the line in the northern settlements.”

Ilushva, a resident of Sderot, hid with her family in their reinforced security room when the missile attack began, and the terrorists invaded the city. One month later, she fought to return to her military post as a fighter in the I.D.F. Artillery Battalion 8194, where she commands a multiple launch rocket system (MLRS). “I knew they needed us. At first, there was a sense of chaos and trauma, but also the knowledge that the College was waiting for its reservists and not rushing to start a new semester - which gave me the calmness and peace of mind to don my uniform and protect my home.”

When the war had broken out, Ilushva knew she would not be able to sit still and do nothing. Until she was summoned to Reserve duty, she had volunteered at the Sderot Municipal Youth Center, helping with the distribution of food to families and medications to the elderly. After her first stint in the Reserves' Artillery Battalion, she transferred to serve in Sderot's Rapid-Response Squad. “Several days after the city had been purged of all the terrorists, and the Sderot Municipality announced that people can come out of their homes, I felt that I had to do something; I had to regain my control, rather than being enclosed by four walls. Sderot was a ghost town. Many had left the city and only returned sometime around the month of March. Meanwhile, in Sderot, the local Rapid-Response Squad was being manned. I was asked to join and, naturally, responded affirmatively.



When the city's residents got the green light to return home, they was a lot more to do. I knew that I must study, that I was amassing gaps, but there [in Sderot], I was needed more.” Once again, in April, she found herself holding the line with her friends in the Battalion, though, this time, in Israel's Central Region.

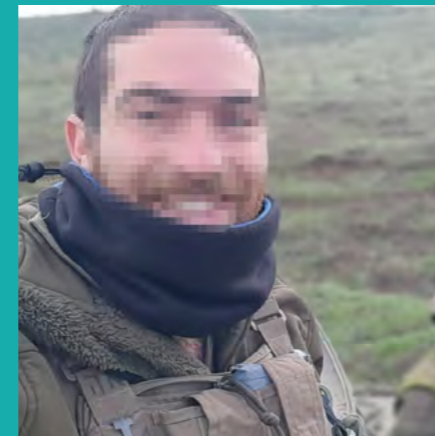
She is sure that none of that would have been possible, if not for the full support she received from SCE and its Department of Civil Engineering. “I found it very hard to cope with the sharp transition from the war bubble to the campus. Adi, Meital, and Sivan, from the department, were there for me, together with Amit, the Head of the Student Union. I found the College's 'war track' to be very accommodating. They were concerned with my reintegration, and reinforcement, and gave me the feeling that I had people I could turn to at any time.”

Despite the pressure to close learning gaps and to pick up the pace, Ilushva feels that everything is insignificant compared to the Reserve soldiers and servicemen, who “do everything that's necessary, so we can conduct life's routine. Who am I to complain about hours, tasks, and difficulties... I'm just praying for the safe return home of the soldiers and hostages, and I'm trying to get through this period, day by day.”

“My friends helped me in difficult places; the lecturers were considerate and extended my submission dates.”

Shoval Alkaslasi is a 4th-year (senior) student, in the SCE School of Architecture, on the Be'er-Sheva Campus, who serves in the I.D.F. as an Adjutant [i.e., an administrative assistant to a senior officer] in a military reinforcement “Magen David Adom” unit, subordinate to the Homefront Command. Her unit assists the regular MADA teams on urgent life-and-death emergency calls.

Among her other responsibilities, Shoval is charged with drafting paramedics, ambulance drivers, and field medics for I.D.F. Reserve duty. She, herself, has already served over 200 days of active Reserve duty. “On October 7, 2023, I was with my parents in Modi'in, when my fellow unit members and I were suddenly summoned to report to the military operations headquarters for active duty. From that day on, we were deployed across the country - from Metula to Eilat.



“I'm studying in an institution that cares and understands the import of this time. This provides terra firma [solid ground].”

Eliyahu Horovitz, a 3rd-year (junior) student in SCE's Department of Chemical Engineering on the Be'er-Sheva Campus, served in the

I.D.F. Reserves, in the Alexandroni Reconnaissance Brigade, for over 274 days. “After the attack on October 7, 2023, we understood, more than ever before, that if we wouldn't go to protect our homes - no one would do it for us. I'm aware that the distribution of the burden was far from egalitarian, but I want to contribute and give back to my country as best I can.”

Eliyahu found himself doing guard duty in the north and coping with endless periods of missile and unmanned drone attacks. He recounted: “We sort of came-full-circle when, out of that same wadi [seasonal watercourse] next to Kibbutz Manara, through which the Hizballah had invaded Israeli territory - we succeeded in destroying that threat. When our time came to enter Lebanese territory, that was exactly where we infiltrated, conquering that territory

and fulfilling our mission.” When he returned home, Eliyahu, married with two children, had to find the balance between his family life and closing the academic study gaps he had during his military service. “This was challenging. You come home after serving in the Reserves and you understand that you're not on a par with your fellow students; not because you're unable, rather because they made progress in learning the subject-matter and you're lagging behind. You feel that you're living two parallel lives. While I was in military service, my academic colleagues were continuing their routine studies. The College was quite accommodating, and my family also gave me space to study and close those gaps, despite the existing difficulties. My wife was obliged to be 'a steadfast rock' for the duration of

understand this complex reality and to show empathy, she knows that she has no choice and continues the drafting process with determination and sensitivity. “We're all humans, coping with a very difficult situation. We check to see if someone else can serve in lieu of the person having trouble, but if no replacement can be found, we explain that we have no choice. We are all required to suit up, so we can respond to emergency situations and save lives.” So, how does one combine military service with architectural studies? Well, the postponement of the start of the new academic year “gave a little room to breathe,” and fellow students and faculty members teamed up to help. “I maneuvered between papers I had to submit, exams, and zoom lessons. We're a small department and all know each other, which is a great advantage. Colleagues helped and directed me in the hard spots, and the lecturers were considerate and extended my submission dates as much as they could. They



maintained an 'open-door policy' that let me turn to them with all my questions - which is not to be taken for granted.” Shoval, who recently completed yet another stint of service in the Reserves, hopes that quiet will soon be the norm again. “I hope that this war will end, that our hostages will return safe and sound, and that we'll be able to return to our good study, work, and home routine.”

Controlling speech volume: Exciting innovation by SCE graduates

Within the framework of their final project, SCE students in the Department of Mechanical Engineering have developed a system that regulates the volume of speech, which will help the hard-of-hearing to avoid social abnormality.

The special connection forged shortly before October 7, 2023, between Shani Miles-Itach, a hard-of-hearing resident of Kibbutz Be'eri, and Ben Chiprut and Israel Yusupov, both currently graduates of SCE's Department of Mechanical Engineering, led to the development of an innovative system, which helps people with hearing disabilities to control the volume of their voices. This system signals to the user if he/she is raising his/her voice louder than necessary and, vice-versa, assisting adults and children used to whispering, to speak up.

"People with hearing disabilities cope, among other things, with communication challenges, due to their difficulty in receiving acoustic feedback regarding the volume of their speaking voices," Shani explained. "As a social worker, I can attest to the fact that this doesn't only involve the health aspect; for example, talking loudly, among other things, causes hoarseness, which also has certain sociobehavioral ramifications. I've been hard-of-hearing from a relatively young age, and, over the past few years, my hearing has deteriorated. Talking too loudly is daunting and sometimes even repulsive to others nearby. People think that I'm shouting (angry) at them, and, more than once, I've found myself apologizing and explaining that I'm hard-of-hearing."

This project began before the Gaza War broke out, stemming from Shani's idea to combine two existing technologies - a dog-training collar, that mildly shocks a barking dog, and hearing-aides that exist in the market, that might enable the regulation of speech volume in relation to each given surrounding. "It was created in response to my personal need," she stated. "I needed something that would help me assess the volume of my voice, so I wouldn't talk too loudly. Thus, the connection with the College happened."

Both Ben and Israel are well acquainted with this subject as sons of elderly, hard-



From right to left, Ben Chiprut, Shani Miles-Itach, and Israel Yusupov. Talking too loudly is daunting to others nearby.

of-hearing parents. They developed this system within the framework of their final project at SCE, after hearing Shani's idea. Their project supervisors were Dr. Nir Trabelsi and Dr. Etan Fisher from the Department of Mechanical Engineering.

Their system combined a "Teensy" microcontroller and advanced voice sensors that measure the vocal volume of the user in relation to his/her surroundings. Whenever the voice's volume level deviated from the desired range, the system would provide an immediate, gentle response. It is a comfortable, compact, lightweight device that is easy to operate. The results of the experiments showed that it significantly improved hearing-disabled people's ability to control their speaking volume - which raises their self-confidence and reduces frustration and embarrassment.

Ben and Israel said: "We began this project before October 7, 2023, when

the war broke out... It was a difficult and challenging year, in which we lost a dear friend from the department; so, we had to pull ourselves back together again. The same was true for Shani, whose father was murdered in Be'eri. She, her husband and three children were saved from the massacre and evacuated from their home. We never quit! We felt it was important for this project to succeed."

Dr. Trabelsi, Head of the Department of Mechanical Engineering on the Be'er-Sheva Campus, stated: "Graduates from our department are well-equipped with a high degree of knowledge and advanced engineering skills, and especially with creativity and out-of-the-box thinking. They have found a novel technological solution, enabling clearer communication. This device will not only greatly benefit the hard-of-hearing but will help educators save their voices by preventing hoarseness, and will, undoubtedly, markedly improve the quality of many lives."

The evolution of users' needs: Empowerment is the new WOW!

In the YOUsability Laboratory of the SCE Department of Industrial Engineering and Management on the Ashdod Campus, the “user empowering design” (UED) approach is being applied and products are being designed that empower their users, altering the interrelationships between the users and technology.

In the present age of technology, the aspiration is not just to design useful, experiential products, but rather to transform them into tools that empower and positively influence their users - beyond the mere use of the tool itself. In that spirit, the “user empowering design” (UED) approach offers a novel paradigm, focusing on producing a broader effect on the users' lives.

Ben Shneiderman, in his 1990 article, claimed that interfaces must empower their users, although he only talked about the user's sense of control and clarity while performing tasks on a computer. Dr. David Gallula (2017, etc.) expanded this approach, discussing empowerment beyond the mere interaction with technology, such as strengthening the user's sense of autonomy and aspirations for growth and actualization.

The pyramid of user needs inspired by the 1980s “Kano model of customer satisfaction”

Serviceability (Must) - the very cornerstone in the design of interfaces, which ensures efficient systems. While its absence creates dissatisfaction, its lone presence is insufficient.

The user's experience (Want) - that engages emotions, aesthetics, and pleasure - already considered to be



An app for strengthening the muscles of the pelvic floor. The team of developers.

standard, thus it does not create significant differentiation.

Empowerment (Wow!) - exceeds the boundaries of serviceability and affects other significant areas of human life, by creating a sense of meaning and life-altering change.

The YOUsability Laboratory of the SCE Department of Industrial Engineering and Management on the Ashdod Campus has an environment dedicated to the development and testing of human-computer interactivity. In this lab, UED is applied, and designers create products for a better world for users. For example:

WhatsThat is an addition to Whatsapp, meant to bridge intergenerational language gaps, to enable mutual understanding and improve communication among family members. This was developed by Dr. Adi Katz and Yana Sophia.

Yesterday's “WOW!” becomes tomorrow's ‘want’ and ultimately becomes ‘a necessity’ in the future!

Today's ‘wow factor’ is an empowering design, one that alters the interrelationship between the users and the technology. Presently, organizations are required to adopt ongoing innovation, so that they may foresee new needs and keep up with their clients, by preceding their competitors.

The first course in the program - the “Scientific Academy for Young People” - got under way at SCE



Thirty excellent high-school students from Ofakim began to learn in this program. By the end of their secondary education, they will have accrued one third of the academic credits required for a Bachelor's degree

This year, it is with joy and excitement that we open the first course in the program, the “Scientific Academy for Young People” at SCE.

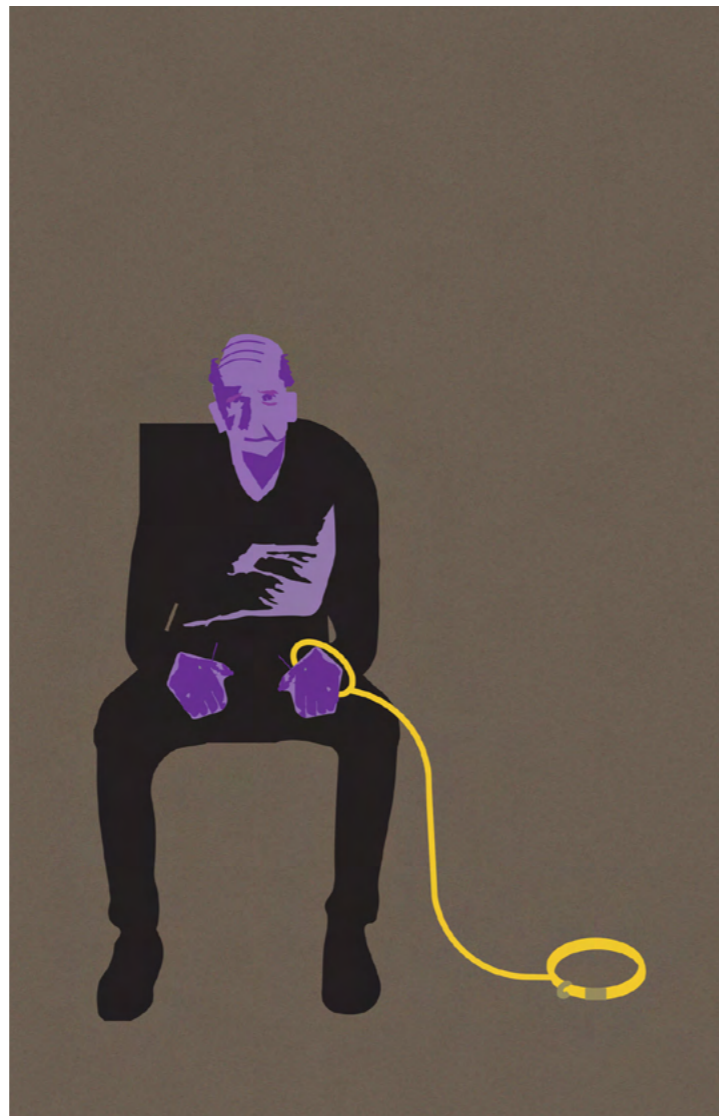
Within the framework of this course, 30 outstanding ninth graders from four high schools in Ofakim will acquire an academic education at SCE's Department of Computer Sciences, on the Be'er-Sheva Campus. By the time they complete the twelfth grade, they will have accrued one third of the academic credits required for a Bachelor's degree.

Present at the opening gathering were: the Dean of the Faculty of Engineering, Prof. Victor Kagalovsky; the Head of Academic Administration and Vice-President, Dr. Avshalom Danoch; and the Director of the Program, Ms. Hagit Segev.

We wish all the participants in this program much success and hope that, one day, they will complete their Bachelor's degrees in Computer Sciences as full-time students here, at SCE.

When personal pain becomes a social problem

During a workshop held within the framework of the course "Design thinking and transmitting a message," of the SCE Department of Visual Communication, the students underwent a deep process, clarifying personal, familial, and communal issues, after which they designed posters on various social topics.



"A man sitting with a dog's leash." Design: Natan Ayalo



"A disabled man is but the shadow of a man." Design: Aviad Salomon.



"The young always muscle out the elderly." Design: Natan Ayal

As part of the course, "Design thinking and transmitting a message," given by SCE's Department of Visual Communication, a workshop was held for first-year students (Freshmen) on "How does personal pain become a social problem?" In this workshop, guided by the poetess and social worker, Bella Alexandrov, questions were discussed, such as: What are social issues? How may they be identified? How can we cope with them?

The Head of the Department, Ms. Nino Biniashvili, stated: "The goal of the department is to emphasize the important connection between design and social issues. The students underwent a deep process, on the

personal, familial, and communal levels, and raised some interesting questions. For example, Does personal pain reflect a broader social problem? Or, How can we understand social issues and act for change - influence Israeli society?

As a part of the workshop, the students designed posters regarding social topics currently on the public agenda.

"Old age and loneliness"

The student, Natan Ayalo, who chose this topic explained: "Old age is the final stop in the race of life. Most of us will face it one day. Many adults find it difficult to cover their basic living expenses, including housing, food, health and medications.

Often, they suffer from social isolation, due to a lack of familial or social support. I felt it was right to raise public awareness regarding the challenges of aging and the situations of older people in Israel."

In the series of posters that he designed, it is possible to find, for instance, "A man sitting with a dog's leash" [but no dog] - "The loss of a pet, especially among the elderly, can enhance sensations of loneliness and isolation. The empty leash symbolizes the physical absence of the dog, but also the disappearance of the emotional and social support that the dog represented for that person. This image transmits the sense of emptiness, and attests to the severed bond and deep

loneliness," he explains.

In another of his posters, entitled "The young always muscle out the elderly," we see an old man seated on the hand of a clock, while young men try to shove him away. According to Natan, this image represents the way in which the young try to displace the elderly. He is relating not only to the difficulty in caring for the frail elderly but to much broader sociocultural processes. Pushing away the elderly symbolizes the pressure placed by modern society on its veterans to vacate their places, to adapt themselves, or to move aside and make room for the next generation, often against their wills or ability."

"The invisible people"

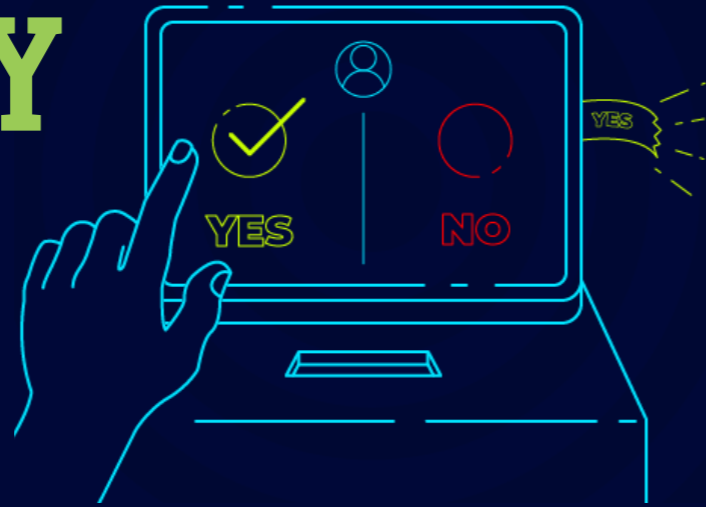
Aviad Salomon, also a student attending this course, was one of those young people dancing at the NOVA party on October 7, 2023, who witnessed the harsh incidents. He succeeded in escaping and was saved. Later, he was called up to fight as an I.D.F. reservist. As a result of the harrowing events he experienced, both at the party and while in military service, he discovered that he was suffering from post-traumatic stress disorder (PTSD).

His posters were inspired and designed by the way in which those traumatic incidents and sights were being expressed in his daily life. In all his posters, there is a man,

seemingly transparent, who appears as a 'shadow' among regular, skin-colored people. This image is meant to illustrate the presence of the unseen vulnerability, and to remind the audience that, sometimes, the real battle is being fought within a person, despite being unseen.

"I feel things I never felt before, and I wanted to raise awareness of everything related to disabled people, whose disabilities are invisible," he stated. "When I have permission to skip to the head of the line, but I look normal, people look at me weirdly. I wanted the message to percolate - so everybody knows that, even if they can't see the damage, it exists, it's real."

DON'T TRY TO VOTE TWICE!



Good news for fans of democracy! The blockchain-based electronic voting system developed by SCE graduates was presented at the “International Brains 2024 Conference” held in Berlin. Their voting system safeguards the voting process, provides verification of the results, and is impervious to tampering and forgeries.

Democracy is safeguarded by “VoteChain,” a novel blockchain-based electronic voting system developed by Shai Matzliach and Tal Sinay, graduates of SCE’s Department of Software Engineering on SCE’s Ashdod Campus. This system secures the voting process, is verifiable, and is immune from tampering - as was demonstrated at the “International Brains 2024 Conference” held in Berlin, where it received a great deal of praise.

This innovative system was developed within the framework of their final project, conducted under the supervision of Dr. Hadassa Daltrophe, the Head of the Communication and Cyber Track in the Ashdod Software Engineering Department, and it was also chosen as the outstanding departmental project of the 2024 academic year.

Matzliach and Sinay explain: “Our project is a novel electronic voting system based on the EOS blockchain. It is meant to revolutionize voting transparency and security by using

blockchain technology to check the voters rights to vote... by the use of strong blockchain deals, smart contracts, and the functionality of decentralized applications (dApps) by the users [the voters] - we are able to cope with the critical vulnerabilities found in the present voting system, including the tendency for cheating and the problem of inaccessibility. VoteChain is a scalable solution, able to maintain high performance levels even during loaded voting periods, while providing transparent records and preventing tampering with the election results.”

Dr. Daltrophe said: “This project demonstrates the superior capabilities of SCE graduates. The effectiveness of VoteChain is manifested by its ability to overcome the challenges faced by conventional voting systems; it sets a solid foundation for future democratic processes, which will be more comprehensive, secure, and credible. This newly developed system goes way beyond electronic voting, suggesting a promising framework for the use of blockchain technology in a variety of other applications that need high levels of security and transparency.”



From right to left: Tal Sinay, Dr. Hadassa Daltrophe, and Shai Matzliach. This system will maintain high performance levels even during loaded voting periods.

Academic faculty



Dr. Irina Rabaev

SCE Academic Faculty member, Dept. of Software Engineering, Be'er-Sheva Campus

Irina resides in Be'er-Sheva, is married, and is the mother of three girls. She attained her three academic degrees by studying at the Ben-Gurion University

of the Negev: a B.S. in Mathematics & Computer Sciences, followed by an M.Sc. and a Ph.D. in Computer Sciences.

Since 2018, she has been employed as a senior member of the SCE Academic Faculty in the Department of Software Engineering on the Be'er-Sheva Campus. Previously, she had been intermittently employed for many years as a guest teacher in SCE’s Mathematics Unit and Department of Software Engineering.

Her primary research areas include computer vision and image processing, with special focus on the analysis of historical documents in Hebrew and Arabic. Irina is active in these fields and has presented her articles at leading international conferences. Moreover, she is an active member of the Planning Committees of the leading conferences and workshops (DAS, ICFHR, HIP, and ICDAR), as well as serving as a judge for various periodicals.

“I love teaching very much. In the past, I spent many years as a Teaching

Fellow in the Department of Computer & Computer Sciences at BGU. From 2003-2009, I taught at “Kidumatikah” – the BGU Youth Advanced Mathematics Club and from 2016-2024, I served as the Coordinator of the Gifted Youth Computer Sciences and Programming Track in the “Odyssey” Academic Studies Program in the Sciences at BGU. I believe that research and teaching must go hand-in-hand, so I apply that belief in practice by integrating elements from my research into the course contents that I teach.”

For each of the last six years, Irina was awarded a certificate for being an “Outstanding Lecturer” by the SCE Department of Software Engineering, and during the years 2022-2024, she won the prize awarded by the SCE Center for the Promotion of Teaching (CPT) for her initiatives and innovation in teaching.

Irina told us that, in her free time, she enjoys reading and nature walks, and this past year she’s begun practicing yoga.

Administrative staff



Yulia Barshay Tuizer

Administrative Assistant of Engineering Faculty (Ashdod) and of the Graduate School

I live in Be'er-Sheva, married to Dudu, a Project Manager of a construction company, and the mother of May (20), Yuval (15) and Noam (11).

I have a B.S. in Logistics from Sapir College, where I took my first steps while still doing my Bachelors’ studies, by joining the Scholarships and Loans Section of the Dean of Students’ Office. After completing my studies in 2018, I left Sapir College.

In March 2022, after a four-year hiatus, I came to work as the Administrative Secretary of the SCE Department of Mechanical Engineering on the Be'er-Sheva Campus. In September 2023, I shifted to become the Administrative Assistant of Be'er-Sheva’s Graduate School. Since October 2024, I’ve been serving both as the Administrative Assistant of the Engineering Faculty of the Ashdod Campus and of the Graduate Schools on both SCE campuses, Be'er-Sheva and Ashdod. Moreover, I assist Dr. Gedalya Mazor in leading the Masters’ program in Mechanical Engineering (with a thesis) on both SCE campuses, as well as helping with the management and

production of the upcoming SCE TECH FEST 25, also held on both campuses.

Before I’d arrived at college, I’d spent 10 years with the El-Al Company, where I acquired a great deal of experience in tourism. I love tourism and enjoy flying and investigating the world. Next year, I’m planning to begin my Masters’ studies in the Department of Tourism and Leisure Management at the Ben-Gurion University of the Negev.

I get great joy and satisfaction from my work at SCE, especially thanks to the ongoing increase in the numbers of students who complete their B.Sc. studies and continue on with us to earn their M.Sc. degrees.

Having worked in a few workplaces, I find the Campus to be my second home - the place where I meet with quality people and professionals in a familial and caring environment. I’m proud to be a part of this institution and to contribute to the academic system and to our students.

An urgent call-to-muster, “Order #8”: Teacher, scientist, and circus artist

Dr. Alexander Wolfson, a lecturer in Physics at SCE, combines his teaching of Physics with his unusual skills in the Circus Arts. Since October 7th, 2023, he has been performing voluntarily before families evacuated from the Gaza Envelope settlements. He said it was “the least I can do for them. For me, it’s like an ‘Order no.8’ (tsav shmoneh).”

SCE’s Dr. Alexander Wolfson is a uniquely special lecturer who combines his teaching of Physics with unexpected Circus Arts.

Dr. Wolfson is 44 years old and lives in Arad. His academic path began with his B.Sc. studies in Physics at the Ben-Gurion University of the Negev. He recalled: “Even then, I had already worked as a teacher, promoting youth... I discovered the Dept. for the Teaching of the Sciences and Technology, where I continued studying until being granted M.Sc. and Ph.D. degrees. Since completing my advanced studies, I have continued to do research and teach Physics, primarily by means of the Circus Arts; as such, I combine the two greatest loves of my life. I joined SCE’s Faculty five years ago, and from the outset, in SCE’s Academic Prep Course, I felt that I’d found my home.”

Nonetheless, Dr. Wolfson recounts that ‘circus arts’ had been a part of his life

well before that. “I’d emigrated from Russia at age 10 and, several years later, I’d come across Circus Arts classes in Arad. Eventually, I became the Circus Arts Instructor; these classes are still ongoing, under the auspices of the Arad Community Center. In parallel, I’m currently producing a show entitled: ‘Between the Circus and Science’, which includes Circus Arts, and my partners, Valeria Shparaga, and my wife, Marina.”

There are two exemplary figures who inspired Dr. Wolfson’s diverse activities. “My first model is Marat Bruck, the teacher who brought the circus to Arad from Russia. To this very day, at the end of every performance, I dedicate the ‘jumping through a burning hoop with knives’ segment to him. In Russia, it was forbidden to do this, but Marat somehow managed to preserve it, to bring it to Israel, and to teach it to me. My second model is the late Prof. Haim Eshach, who coordinated the Physics

studies in the Dept. for the Teaching of the Sciences and Technology and served as my Ph.D. Thesis Mentor. Sadly, he passed away only two weeks before I submitted it for judging. I feel that I inherited his educational path for teaching Physics, and I credit him with convincing me to continue doing research.”

The Physics prep classes that Dr. Wolfson gives at SCE are meticulous and special. He teaches the subject-matter thoroughly, “into its guts,” as he puts it. “I don’t allow myself to enter a classroom with material I don’t deeply, physically understand. While teaching the Physical Sciences, I’m teaching the paradigm of constructivism, which claims that new knowledge results from the student’s prior knowledge. Thus, a connection is made, when the previous knowledge serves not only as a basis, but also as a filter and channeler of new knowledge. As such, I’m always careful to reveal the relevant prior knowledge and

misconceptions; only it only possible to teach new material on that foundation. I’m also determined in my method of teaching by way of demonstrations and research. I would never start a class with a formula, but rather by observing a physical or mechanical phenomenon, often taken from the circus arts and, sometimes, using technological devices. We present a research problem and discuss it in a classroom dialogue and, only then, I’ll construct the concept and provide the new knowledge.”

Dr. Wolfson greatly appreciates SCE’s investment in teaching. “The College’s serious approach to teaching is what motivates me as a lecturer.” He adds: “Even the students who come to us are serious, coming to learn a profession and to learn about the world. They’re curious and interested, not like those who just check things off. Moreover, SCE’s very humane - I see all the support and assistance the struggling students get - those who were ill and, especially, those who were mustered for I.D.F. Reserve duty. In that respect, the support granted by the College resembles that of a family.”

In conclusion, regarding service in the Reserves, Dr. Wolfson’s work with [displaced] children from the Gaza Envelope since October 7th, 2023, should certainly be viewed as active service. “I’ve been performing, as a volunteer, together with Valeria and Marina, children from my Circus Arts class, and additional artists, before the families and children from the Gaza Envelope settlements, in Hotels at the Dead Sea, and at additional venues across the country. To do tricks with swords, juggling clubs and balls is the least I can do for them. For me, it’s my urgent call-to-muster (tsav shmoneh).”



Purple night

This year, the SCE Campus buildings were lit by purple spotlights as a sign of appreciation of/and identification with the tens of thousands of physical and mental casualties of the war that joined the current disabled population in Israel.

December 3, 2024 marked the annual celebration of the “International Day of Persons with Disabilities” having equal rights. This day is meant to raise awareness of/and promote their rights and integration into society.

Each year, SCE joins tens of institutions, organizations and companies in Israel, and illuminates the entire SCE Campus in purple light, the color associated with people living with their disabilities. This year, the

Campus buildings were lit as a sign of appreciation of/and identification with the tens of thousands of physical and mental casualties of the war, civilians and soldiers, who paid with their bodies and souls - joining the other 1.5 million disabled living among us in Israel.

On this day, and every day, we wish to strengthen and hug the citizens in northern and southern Israel, and we continue to pray for the safe return home of our hostages and soldiers.





SCE

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