

Thinking Locally. Acting Globally.

Celebrating the Past *Inspiring the Future*

Report of the President and the Rector 2022

UNIVERSITY OF HAIFA



UNIVERSITY OF HAIFA Celebrates 50





Cover Photo: Yaniv Koppel and University of Haifa Archives



Agreement to establish the Haifa University Institute between the Haifa Municipality and Hebrew University, 1963





University of Haifa's visionary founder, Haifa Mayor Abba Hushi, at the signing ceremony, 1963



Construction Mt. Carmel campus model conceived by renowned Brazilian architect Oscar Niemeyer

'64

Campus

'63 Beginnings '67 Campus Construction Inauguration of Multi-Purpose Building Abba Hushi '66 19 60s Designed by famous Israeli Prime Minister Levi sculptress Dina Eshkol at the Merchav cornerstone ceremony

5 Thinkin Acting

Thinking Locally. Acting Globally.

50 Years of Academic Excellence & Social Responsibility

University of Haifa, originally founded a decade earlier as a satellite campus of Hebrew University, received full academic accreditation in 1972. Since then, the University of Haifa has grown into a world-class academic institution and a model for research excellence in an inclusive environment.

Only a portion of significant events appear here.



University of Haifa is now celebrating its first 50 years. We invite you to discover our history and learn about our impact through our major milestones, achievements and programs. PRESIDENTS

RECTORS





Prof. Benjamin Akzin 1971-1972



Prof. David Lapkin 1972-1974



Prof. Gabriel Warburg 1974-1977 Prof. Shlomo Breznitz 1977-1979



Abba Eban is keynote speaker at The United States and Israel Candid View of a Special Relationship symposium



Signing MOU with the Israel National Defense College and Israeli Air Force



Honorary Doctorate Dr. Henry A. Kissinger



Honorary Doctorate **US President** Jimmy Carter Zinman Institute of Archaeology

1988

'80s &'90s

'89

Reuben Hecht Museum

1984

Visits Dr. Reuben Hecht

83



Doctorate President Chaim Herzog



Paving a Roadmap for

UofH grants academic degrees to IDF officers from The IDF National Defense College, The General Command and Staff College, and The Tactical Command College.

80s



Joseph Teicher 1983-1984



Ephraim Evron 1984-1988



Amos Eiran 1988-1990



Prof. Gabriel Ben-Dor 1986-1991



Prof. Ozer Schild 1979-1983

Prof. Uriel Rappaport 1983-1986



Dean of Students Unit for Student Advancement opens program for Arab Students

Faculties of Education and Social Welfare and Health Sciences

1995



Students

First academic excellence program for Ethiopian students

The Cheryl Spencer Department of Nursing

1995





Memorial Day for Israel's Fallen Soldiers (Yom Hazikaron)



Honorary Doctorate Prime Minister Yitzhak Rabin

Shared Society and Educational Excellence





UNESCO Chair in Bioethics, Haifa

Reuben Hecht Museum hosts a field trip for schoolchildren





Prof. E. Ozer Schild 1990-1993

Israel's first female Rector



Prof. Aliza Shenhar 1991-1994



Prof. Mordechai Shechter 1994-1997



Prof. Yehuda Hayuth 1993-2004



Prof. Gad Gilbar 1997-2000





Campus Construction Jacobs Building 02

Scientific Discovery Clinical Psychologist, Prof. Eli Somer coins the term maladaptive daydreaming



First Cohort Jewish-Arab Community Leadership Program



Honorary Doctorate Danish Prime Minister Anders Fogh Rasmussen

Leon H. Charney School of Marine Sciences

2008

Edmond J. Safra Brain Research Center for the Study of Learning Disabilities

2008

Campus Construction

Hatter Student Building



Caesarea Edmond Benjamin de Rothschild Foundation Institute for Interdisciplinary Applications of Computer Science

2001

Sagol Department of Neurobiology

2004

06

Honorary

Doctorate

UK Prime Minister Tony Blair

> Research led by Prof. Wendy Sandler, reveals universal characteristics in all human languages and their origination



Campus Construction **Reuben Hecht School** of the Arts Building

PRESIDENTS

RECTORS

20 00s



Prof. Aaron Ben-Ze'ev 2000-2004



Prof. Aaron Ben-Ze'ev 2004-2012



Prof. Yossi Ben-Artzi 2004-2010









Amos Shapira 2012-2016



Prof. David Faraggi 2010-2016



2016

Faculty of Social Sciences is named in honor of Herta and Paul Amir

2016



Discovery Prof. Mina Weinstein-Evron unearths the oldest human fossil outside of Africa





Honorary Doctorate President of Liberia Ellen Johnson Sirleaf

PLASSO

Honorary Doctorate Executive Chairman of the World Economic Forum, Klaus Schwab



Lorry I. Lokey City Campus in Haifa's downtown Port area

Dylan Tauber Educational Complex

Honorary Doctorate German Chancellor Angela Merkel



Scientific Discovery

Prof. Tzion Fahima leads study identifying the structure of a new resistance gene (Yr15) in wild emmer wheat



'17

Prof. Ron Robin 2016 - present



UofH and the Israel Antiquities Authority

launch a replica of a 2,500 year old ship

uncovered at Maagan Michael

Prof. Gustavo Mesch 2016 - 2021 Campus Construction

Joint Technological Institute with East China Normal University (ECNU) in Shanghai







Prof. Mouna Maroun named Israel's "first woman" in neuroscience



'20s

Prof. Gur Alroey 2021 - present







Celebrating the Past Inspiring the Future

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Through the collective efforts of our leadership, academic and administrative staff and supporters, UofH will continue to build and innovate and make a difference in the lives of our students, their families and Israeli society.

MESSAGE FROM THE CHAIRMAN OF THE BOARD OF GOVERNORS

t is an honor and a privilege to serve as Chair of the Board of Governors during the University's Golden Jubilee year.



The University of Haifa was established with a founding mission of combining academic excellence with social responsibility – ensuring that students from the full spectrum of Israeli society have access to higher education. Over the past five decades, the University has grown into a highly respected institution with a reputation for pioneering research, outstanding faculty, and a steadfast commitment to diversity, equality and inclusion.

Since assuming the position of Board Chair in 2019, I have been constantly impressed by the passion and dedication of our leadership team and faculty members. I am most proud of the steps we have taken together to connect the University to the city of Haifa and society at large. I firmly believe in the great potential of this university to strengthen Israeli society and be a global change agent.

To support our ambitious research agenda and attract the high-quality doctoral candidates and postdoctoral fellows, our family recently made a gift to establish the Bloom School of Graduate Studies. I believe the School will play a key role in furthering the mission of the

University, adding to the academic excellence of our existing programs and attracting talented academics who will eagerly address global problems from a cross-disciplinary perspective.

On this auspicious occasion, I would like to thank members of the Board of Governors for all that you are doing to support University of Haifa, its students, faculty and employees. Under difficult circumstances, we have accomplished a great deal together and I look forward to assisting our leadership team in the coming decade as it positions the University to adapt and succeed in a rapidly changing world.

Bradley M. Bloom *Chairman of the Board of Governors*

Bradley M. Bloom is a co-founder of private equity firm Berkshire Partners. He is the Chairman of the University of Haifa's Board of Governors and has served on the Harvard Corp. Committee on Finance.

PRESIDENT'S MESSAGE



Leading Towards a Brighter Future: The Next Fifty Years

UFH

ince its establishment in 1972, University of Haifa has been an institution of research and teaching dedicated to the public good. It is, by definition, a university for all. Over the years, UofH has become a beacon of equality and tolerance in the State of Israel. Prof. Larry Bacow, President of Harvard University,

called our campus the 'crystal ball' of Israeli society – a blueprint for how our society will look in the future.

University of Haifa has never been an ivory tower (despite its elevated loca-



tion). It reflects our Israeli character as a society and a country. From its earliest days, the founders of the University were committed to the benefit of human-

kind, and accordingly, academic research focused on humanity, society and the environment. It was a forward-thinking institutional approach in 1972 and even more relevant today. We proudly carry this mandate into the future, committed to creating a better quality of life for all.

Over the last fifty years, the scope of our academic program has enabled tens of thousands of 'first generation' young adults to

Kicking off the start of the 2021-22 academic year with a visit from Dr. Yifat Shasha-Biton, Minister of Education.

enter the Israeli workforce, offering them an equal opportunity and a gateway to the middle class. At a time when Western democratic values are increasingly coming under attack, University of Haifa's leadership, together with our partners – faculty, students, and generous donors in Israel and abroad – insist on following this ethical path. It may not be the shortest or easiest path – but it is absolutely the right and moral path to take.

At the same time, the dramatic changes in Israel's higher education landscape, most notably the emer-

gence of a large number of academic colleges, and then the global epidemic, compelled us, the University leadership, to take a serious look in the mirror and determine if our reflection was in harmony with the spirit of the times. The conclusion was clear as day: Our University has hidden treasures that we are cultivating to address the great

challenges of our time. We recently established a unique Brain and Behavior Hub with leadership that boasts prestigious EU research grants; we continue to develop initiatives to combat inequality, a global issue we have been studying for many years; we are home to a world-class Gene Bank focused on ensuring the future of food security; we were the first Israeli university to offer degrees in gerontology; and our graduates continue to secure key positions at decision-making levels in the Israeli economy – from the Ministry of Education to the Office of the IDF Chief of Staff. These are but a few examples of the rich and fruitful research initiatives underway.



Prof. Ron Robin in front of a mural by celebrated Brazilian muralist Eduardo Kobra, on a recent visit with the Jewish leaders of São Paulo at the Jewish Community Center (Hebraica).

We have spent the last fifty years building a robust physical and academic infrastructure, which will enable us to expand vigorously and make a significant contribution not only to our graduates - but also to society as whole. In other words, the University

of Haifa is now well positioned to fulfill its long-term mission of contributing to environmental health, social well-being and a just economy through groundbreaking research and a distinctive academic experience.

We now understand that academic development and physical development are fundamentally intertwined. The Mt. Carmel Campus, which has become the symbol of the University, serves as its main headquarters. In addition to being a thriving academic center, it is also a tourism gem that attracts thousands of visitors each

week. To either side of the Eshkol Tower, we have constructed buildings that blend into the scenic landscape and house our Faculties of Education, Social Welfare and Health Sciences, and Law. At the same time, green modes of transportation, such as the picturesque Cable Car Project, now bring students and visitors to the campus from the city and across the country. To help the campus become a cultural center and attract more traffic, we established a sculpture garden where the best contemporary Israeli artists exhibit And, at the foot of the mountain – the bustling lower city. In recent years, we have invested careful thought and significant resources into developing an innovative urban campus – with an emphasis on the emerging fields of data science and entrepreneurship. The Lorry I. Lokey City Campus will provide students with an authentic urban experience while offering them myriad opportunities to interact with the local economy and the nearby start-up scene. The City Campus will eventually accommodate up to 3,000 students.

In addition, we are continuing to pursue a potential merger with WIZO Haifa College. When this materializes - the Bloomfield Campus, which specializes in the fields of architecture and design, will be added to UofH's City Campus. In this way, we will be able to offer the largest and most impressive range of disciplines in the Social Sciences and Humanities (Liberal Arts) in Israel.

Our rigorous research agenda focuses on the intersection between humanity, society and the environment, and takes place in and between three natural laboratories – *mountain, city* and *sea*. The mountain and the city, via the Carmel Campus and the City Campus, harmoniously complement and dovetail with one another; and the sea is the source of our daily existence. The sea is the present, future and greatest promise for a sustainable future in the coming decades. The Leon H. Charney School of Marine Sciences is an outstanding



their work. The garden is located next to the Hecht Museum, which we are also currently expanding and adding the "Jeckes Wing", which will preserve the cultural treasures of German-Jewry. The Mt. Carmel Campus is also home to the Bloom Graduate School, a new stateof-the-art learning space that will serve as a magnet for the best graduate students, stimulate cross-disciplinary research and support an ecosystem of academic excellence. model for the contribution of translational research to environmental and economic sustainability. Dramatic changes in global temperatures have led, among other things, to global food shortages and transformed aquaculture and basic research of the seabed and oceans into critical research enterprises for the future of humanity. Therefore, in parallel with our intensive research on these topics, we are educating a new generation of marine scientists with a more holistic and up-to-date understanding of the variety of fields that inform the marine system. Our goal is to build an integrative academic system, which will produce solutions to the climate crisis and its potentially devastating consequences. In other words, sustainable solutions will largely come from the sea.



Even overseas, we are thinking locally and acting globally. Our innate experience creating connections between cultures, religions and people, has brought us to extraordinary places. Particularly notable are the growing ties we are cultivating with the German government and its research institutions such as the



(l-r) Rector Gur Alroey, HE Dr. Shaikh Khalid bin Khalifa Al Khalifa, Chairman of the Board of Trustees of King Hamad Global Center for Peaceful Coexistence, and President Robin at the academic MOU signing ceremony, the fourth such agreement signed with universities in the United Arab Emirates and Bahrain. Free University of Berlin and the Helmholtz Institute; the warm and close relationship we are developing with the Jewish community in Brazil; and the exciting academic agreements we have signed in the United Arab Emirates and Bahrain – a mutually beneficial partnership created by the signing of the Abraham Accords. We are likewise constantly working to develop our International School and to enrich the content and programs we offer to students from around the world. The continuous connec-

tion that we maintain with the Israeli missions
in different countries – stretching from South
Africa, through Portugal to Canada and the US
helps us spread awareness of the University
of Haifa and the options available to students
interested in studying abroad. For them, as well
as for the local student body, we will provide the
most advanced and effective pedagogical infra structure: hybrid studies that also incorporate a
rich campus experience; peer-to-peer learning
sessions utilizing state-of-the-art platforms;
advanced multimedia rooms that will enable
virtual researchers' meetings; lifelong learning
along with attractive micro-degrees, and more.

I extend warm thanks to our friends in Israel and abroad. Your trust over the years, your generosity and patience, the uncompromising vision that you seek to leave for future generations – these will enable us to meet our scientific and social challenges. The significant increase in fundraising in recent years has expanded opportunities for our faculty and students.

The list of our Honorary Doctorate recipients, whose pictures adorn the university walls, also attests to the deep commitment of the Israeli and international community to the scientific-social mission that defines us. Together, we set our sights on the future of Israeli society and all of humanity, and identify the big questions that will inevitably change our lives. The Coronavirus period has taught us that even the most formidable challenges can be solved when the scientific community works together. Therefore, research universities-the bastions of scientific truth-are irreplaceable. The meeting of minds, the transcendence and long-term impact on the immediate and distant environment - all of these prove that even in the face of unexpected threats, science will prevail.

The jubilee year of the University of Haifa is a momentous occasion. A little more than a month after the State of Israel celebrated its 74th Independence Day, the University is celebrating this milestone of its independence. Atop the evergreen mountain, and now also in the lower city—led by outstanding academic and administrative staff, a diverse student community and a group of steadfast and generous friends – the University of Haifa is a beacon of hope for a better future.

I thank you all, and wish you good health and continued blessed work,

Prof. Ron Robin President

The Steinmetz family at a recent campus visit where they met with 60 students participating in the Social Mobility Program launched by the University of Haifa in 2020 with their generous support.



MESSAGE FROM THE RECTOR

66

Driven by social responsibility and a multidisciplinary approach that encourages different perspectives and unusual pairings, University of Haifa is forging new paradigms and solutions to address the world's greatest challenges, including climate change, reducing poverty, hunger, and discrimination.





ear Members of the Board of Governors, Colleagues and Friends,

2021–22 was a significant year for the University of Haifa. We reopened our campus, expanded our academic programs and unveiled a bold, new vision – one which was met with widespread support from our faculty.

The University of Haifa has made a strong commitment to social and environmental sustainability in accordance with the goals set by the United Nations for sustainable development (UN's Sustainable Development Goals; SDGs). The 17 goals, which were adopted by all UN member states, are a 'roadmap' for humanity. The University of Haifa is advancing these goals through research, teaching, public engagement, and the institution's ongoing operations. Our unique geographical location – Mountain (our main campus situated in the Carmel Forest); City (the

Downtown Campus); and Sea (laboratories located along the Mediterranean coastline) – serves as a "living laboratory" for research on man, society and the environment. Our researchers have established a network of international connections

Students support the University's "Drive to Green" campaign adopting a cross-campus plastic minimization policy. that contribute to sustainability research. And, while the insights emerging from this research shed light on local issues, their impact is global.

The fruits of the investment were reaped by the University in early May with the publication of the Times Higher Education Impact Rankings, which measures the overall academic activity of universities in the field of sustainability. In the 2022 Index, the University of Haifa jumped 100 places as compared to last year, and is now ranked in the 201-300 cluster internationally and first in Israel. The University of Haifa is now ranked 48th in the world for *SDG 4: Quality Education*. Other notable rankings include 84th in the world for *SDG 3: Good Health and Well-being*, and 98th in the world for *SDG 14: Life Below Water*.

Presenting Ambassador Noa Furman, deputy permanent representative at Israel's mission to the UN, with the University of Haifa's Sustainable Development Goals Report.



ACADEMIC VISION:

Located in a unique social and ecological nexus, University of Haifa strives to be a symbol of excellence in teaching and interdisciplinary research in Israel and worldwide with an academic agenda focusing on social and environmental issues as part of its efforts to improve human welfare and Israeli society. Its public engagement will play a key role in Israeli culture,

> geography and community life and as such, we will serve as a catalyst for change, promoting and developing leadership in public and business sectors, and encouraging everyday coexistence within Israel between members of various religious groups.



Visiting with researchers from the Animal Flight Group on site at the Hula Valley

Campus tour with Dr. Yifat Shasha-Biton and President Robin.

Another important step we took this year to advance research and sustainability is the establishment of the Bloom School of Graduate Studies. The Bloom School marks a fundamental change in the way research students, and especially postgraduate students, study for their doctoral degree. Instead of doctoral students focusing exclusively in their field of research, Bloom School research students will also take general courses that deal with global issues that are not necessarily related to their field of research, such as immigration,

NEW

Newly Established Academic Centers:

- The Haifa Brain and Behavior Hub
- The School of Archaeology & Maritime Cultures
- Haifa Hub for the Study on Politics of Inequality
- \rightarrow Haifa Laboratory for Religious Studies
- The Inter-University Center for Artificial Intelligence and Ethics
- The Multidisciplinary Unit for Polish Studies \rightarrow
- Kayma Executive Education Center for Social Innovation and Impact Entrepreneurship

NGOs, or personal, social, environmental and personal well-being.

In addition to the Bloom School, we have established three cross-disciplinary centers that promote research, teaching and impact: A hub for the politics of inequality, a hub for brain and behavior and a hub for the environment. Dozens of faculty members are active in each hub, each of whom promotes research and teaching in the field of sustainability. The hubs transcend disciplinary boundaries and will lead, in the near future, to collaborative and groundbreaking research.

Working together, the University of Haifa family - our dedicated community of researchers, staff and loyal friends and supporters - can change lives and our world for the better. I encourage us all to think locally and act globally. Doing so will bring us closer to our goals as we celebrate the University's 50th anniversary.

Gur Abraly

Prof. Gur Alroey Rector

UNIVERSITY OF HAIFA Established 1972



Mt. Carmel Campus

Lorry I. Lokey City Campus



10





57 Inter-

Interdisciplinary Research Centers



16.806

Students

Λ

6

Faculties



2

Academic Departments

59



+400

International Students (from 40+ countries)



18 International MA Programs

Operating Budget

	2020/2021 ACTUAL		2021/2022 BUDGET		
INCOME	NIS M	%	NIS M	%	% CHANGE
Government Allocation	692.4	70%	703.4	70%	1.6%
Tuition Fees	206.7	21%	213.7	21%	3.4%
Other Income	86.1	9%	87.5	9%	1.6%
Total Income	985.2	100%	1004.6	100%	2.0%
EXPENDITURE					
Salaries & Pension Payments	748.7	76%	786.6	78%	5.1%
Other Expenditures	236.5	24%	218.0	22%	-7.8%
Total Expenditures	985.2	100%	1004.6	100%	2.0%

*Source: Office of the CFO

UofH Rankings

IMPACT RANKING

TOP 300

(up 100 points)

Based on four indicators in the promotion of the United Nations' Sustainable Development Goals (SDGs): research, stewardship, outreach and teaching.

#1

Israeli university committed to focusing on the UN's 17 SDGs

*Source: VATAT Research model measuring publications and grants awarded to faculty members.



Source: Academic Ranking of World Universities 2021 (Shanghai Rankings)



Education Sociology Public Administration Communications

TOP **150** Psychology

TOP **200**

Law Mathematics Political Science

Meet our Students

STUDENTS BY FACULTY





ENROLLMENT BY DEGREE

*Not including post-doctoral fellows.

84%

MINORITY STUDENT ENROLLMENT

44% 26% of Undergrads of Masters candidates 77% 18% of Teaching of PhD candidates Certificate

*Source: Office of the Dean of Students

WE ARE THE MAJOR of Undergrads at UofH are from the Israel's ACADEMIC HOME northern periphery FOR IDF OFFICERS AND SECURITY FORCES.

Meet our Faculty & Staff





*Ministry of Transportation (May, 2022)





University's Share of Competitive Research Grants from VATAT Research Model



* VATAT is the Planning & Budgeting Committee of the Council for Higher Education. * Source: Research Authority of the University of Haifa



of high quality scientific publications over the past 5 years



external grants awarded to faculty members



*Source: Research Authority, based on SJR: Scientific Journal Rankings

Social Mobility & Shared Society

50

YEARS OF INCLUSIVE ACADEMIC EXCELLENCE AND SHARED SOCIETY IN ISRAEL



Meet UofH students participating in two of the Jewish Arab Center's shared society programs.

TOP 100

UofH ranks in the top 100 worldwide for Reducing Inequalities (SDG #10)

*Source: Times Higher Education Impact Rankings survey evaluating 1,400+ universities from 100+ countries (published in 2022).



Academic Projects & Centers (Partial list)

Jewish Arab Center

founded in 1972, generates interdisciplinary research and dialogue on Jewish-Arab themes.

Index of Arab-Jewish Relations

developed and published annually (since 2012) by Prof. (Emeritus) Sammy Smooha

The Haifa Laboratory for Religious Studies promoting interfaith dialogue.

International MA Program Peace & Conflict

Rigorous one-year program combining peace building studies and conflict.

Human Rights Legal Clinic

Over a decade of legal aid to underserved populations: people with disabilities; refugees and undocumented individuals; members of the Arab-Palestinian minority.

The Shared Society Index

Results are shared with policy makers and NGOs.

Model for Shared Living Project in Israel

Implementing a UofH model published by the Israel Democracy Institute.



Student Programs & Outreach (Partial list)

Jewish-Arab Community Leadership Program

generously supported by the German Friends Association for over 15 years

Social Mobility Flagship Project

offering comprehensive support services for socio-economically disadvantaged students and advocacy.

Arab-Jewish Orchestra

at the School of the Arts since 2010.

Pre-university Programs and Projects

Including mentoring programs and programing courses in high schools in rural communities.

Entrepreneurship Programs

Druze Student Entrepreneurial Group

- Social Entrepreneurship Project for Shared Life in Acre
- > **The Nursery** -an incubator for student entrepreneurs from the Arab society
- El-Sabil ("The Road") Israel's first women's community for Druze students. More than 500 Druze women attend UofH.

*Programs are operated by the Office of the Dean of Students.

•Listed programs and centers receive support through philanthropic foundations, government sources and NGOs.

BRAINS THAT FIRE TOGETHER WIRE TOGETHER

Decoding the interactive learning process in the brain

eighing in at three pounds, on average, the brain is the most complex and least understood organ in the human body. Made up of approximately 86 billion neurons and woven together by an estimated 100 trillion synapses, it holds the secret to our cognition, consciousness, emotions, ability to act, produce language and retain memories.

Possessing a remarkable capacity for reorganizing pathways and forming new connections – a concept called neuroplasticity, or brain plasticity- the brain's ability to rewire itself plays an important role in learning, repairing damaged regions and adapting to new circumstances.

"Traditionally, neuroplasticity research was focused almost exclusively on investigating changes in brain structures and synaptic networks within an individual brain," explains Prof. Simone Shamay-Tsoory head of the newly established **Haifa Brain and Behavior Hub**. "Our research contends that the human brain cannot be studied in isolation. Given that humans are social beings and that social interactions play a major role in the acquisitions of skills and knowledge, I am pursuing a new approach to understanding learning that focuses on interbrain plasticity."

The European Research Council agreed with Prof. Shamay–Tsoory and saw fit to award her a prestigious ERC Advanced Grant to further our understanding of brain–to–brain coupling and how the brain changes during interaction –based learning.

"Studies show that most people learn better when they interact with other people. We want to explore the biological processes that underlie interaction-based learning. We believe that this line of research will improve our understanding of long-term memory consolidation in 'neurotypical' brains and play a role in enhancing the learning experience for students with autism spectrum disorder (ASD) and other conditions that affect social learning."

Prof. Shamay-Tsoory's lab, The Social and Affective Neuroscience Laboratory, has garnered international recognition of late for its pioneering emphasis on inter-brain synchrony. In an article published in *The Proceedings of the National Academy of Sciences*, Shamay-Tsoory together with a team of colleagues showed that the simple act of holding your loved one's hand can reduce pain. "Touch is very powerful," states Shamay-Tsoory. "We found that holding hands creates a connection between brains that can measurably reduce physical pain being endured by one of the parties."

Currently, Shamay–Tsoory is teaming up with Prof. Shlomo Wagner (Sagol Department of Neurobiology) and researchers from Germany to examine the changes that take place in the brain during social isolation. The topic has gained momentum in the scientific community as researchers are trying to understand the psychological risk factors associated with COVID-19 lockdowns.

"We are just beginning to understand the role that inter-brain synchrony plays in education, psychotherapy, group creativity and conflict resolution. We believe that this approach will provide scientific insights that will cut across academic disciplines, healthcare services and policy areas. Ultimately, I see this as a growing trend that will continue to evolve and make a significant contribution to improving society."





Prof. Simone Shamay-Tsoory (School of Psychological Sciences) is a pioneer in the field of social neuroscience.

The newly inaugurated Haifa Brain and Behavior Hub will serve as the transdisciplinary focal point for UoH's neuroscience program, bringing together faculty from different fields to develop interdisciplinary solutions for medical, educational and social problems.

Innovative research areas include: Learning (from the molecular level to real-life behavior); Pain Neuroscience (measuring, preventing and treating chronic pain); and Computational Neuroscience (optimizing novel therapeutic strategies to alleviate the symptoms of neuropsychiatric disorders, such as autism, schizophrenia, bipolar disorder and depression).

Thanks to the generous support of Bradley Bloom and his family, the Hub will award scholarships to graduate, doctoral and postdoctoral fellows to inspire their careers in neuroscience. The gift will also help fund the establishment of a Multimodal Neuroimaging Unit that uses an array of imaging methods to study brain functions and dysfunctions, ranging from molecular and cellular neuroimaging to human structural and functional imaging and imaging of brains of humans in real-life situations. **MOUNTAIN & SEA**

AND BAND

REVOLUTIONIZING ARCHAEOLOGY RESEARCH IN ISRAEL

"From high-resolution drone imagery and laser mapping to DNA analysis and virtual reality reconstructions of ancient cities, new tools and techniques are transforming the field of archaeology," explains Prof. Israel Finkelstein, a world-renowned researcher who was recruited to head the new School of Archaeology and Maritime Cultures.

"The fact that archaeology studies was already quite strong at the University made my decision to join relatively easy. University of Haifa has fully embraced the marriage of archaeological sciences with emerging technologies. Our vigorous commitment to interdisciplinary research and emerging technologies is going to revolutionize archaeological research in Israel."

The mission of the new School is to elevate archaeology research in Israel, serving as a catalyst to lift Israeli universities to the upper echelon of international archaeology rankings. The School will be the first-ofits-kind in Israel to integrate the full scope of archaeological activities – on land and at sea – under one roof. "We are building a supportive research environment where physicists, geneticists, mathematicians, geographers, historians and anthropologists can interact on a regular basis. Moreover, there's quite obviously a



lot of synergy between the Hecht Museum's activities and the School. Ultimately, we plan to generate a comprehensive research agenda and apply the latest scientific techniques to ensure that our past comes alive," says Prof. Finkelstein.

Meet Prof. Israel Finkelstein

Prof. Israel Finkelstein was recruited by UofH to establish the new School of Archaeology and Maritime Cultures. Finkelstein is widely regarded as a leading scholar in the archaeology of the Levant and as a foremost

applicant of archaeological data to reconstructing biblical Israelite history. Known as something of an iconoclast, Prof. Finkelstein received the prestigious Dan David Prize (2005) for his creative scholarship that has "transformed the study of history and archaeology in Israeli universities."

The School of Archaeology and Maritime Cultures will be home to four departments:

Department of Maritime Civilizations

conducts underwater explorations along the Mediterranean coast and elsewhere. The Israeli coast has one of the densest concentrations of shipwrecks in the Mediterranean. **The only such department in Israel**.



is committed to advancing and transforming our understanding of the past landscape, material culture and history of Israel through innovative research and teaching.





2022-2023 Department of Archaeological Sciences

seeks to achieve the highest standards of excellence in science-driven archaeology research and education. By integrating exact and life sciences into archaeology studies, we will gain a better understanding of evolution and ancient lifestyles that will help us make better decisions about the future.



NEW IN ISRAEL

2022-2023 Department of Conservation of Material Culture

will be focused on utilizing best practices in conservation science and practice for the protection of cultural heritage. Our graduates will play a vital role in protecting and preserving the art, objects, and historic sites that tell the story of our lives, history and society.





THE FUTURE OF OUR COASTAL CITIES Dr. David Friesem

Investigating Neolithic coastal settlements and responses to environmental dynamics using high-tech archaeological technologies, which will be critical to protecting coastal communities from rising sea levels.



FOOD SECURITY Dr. Nimrod Marom

Merging archaeology and biology to investigate human-environment interactions in antiquity, and its effects on ancient food-webs and the fragile Judean Desert ecosystem.



Winning ERC Projects to tackle Big Scientific Questions

CLIMATE CHANGE Prof. Guy Bar-Oz

Restoring heritage grape cultivars in the Negev desert and investigating the impact of climate change on local ancient agriculture.

Resolving Disputes

CITY

EXAMINING THE BENEFITS AND CHALLENGES OF VIRTUAL COURTROOMS



European Research Council

echnology has revolutionized our daily lives – giving us powerful tools to communicate, shop and solve problems. Today, almost every aspect of our commercial transactions can be handled online, from finding the best deals to resolving legal disputes. But online avenues are no longer relegated to commercial activity. Within the next decade, experts predict that 75% of all legal disputes will be settled online. and PayPal, settling millions of disputes between buyers and sellers faster and more efficiently, while simultaneously reducing costs and enhancing convenience. The online tools were also good for business, with buyers and sellers reporting extremely high levels of satisfaction.

With ODR poised to expand its reach in the coming years, some critics are raising concerns that remov-



ing physical encounters and human insight and judgement from legal proceedings introduces unintended harmful consequences, such as the inability to build personal rapport between the parties and unequal access to computers and high-speed internet.

Before the advent of the Internet, commercial disputes between two parties were traditionally settled by a judge or a neutral third-party mediator. With the shift from face-to-face legal processes to online proceedings, the digital revolution is redefining the roles of judges, lawyers, and courts. "It's difficult to grasp the magnitude of the change because we still think of courts as a 'place'," says Prof. Orna Rabinovich-Einy. "We are entering an era where algorithms will support, and even replace, judges, and many of our processes for addressing disputes will take place remotely."

Online Dispute Resolution (ODR) tools were developed in the '90s and pioneered by companies like eBay



"Embracing technology is not a magic solution. It provides us with an opportunity to redesign and reimagine the ways in which our institutions and processes operate to ensure fairness, accessibility and trust." – Prof. Orna Rabinovich-Einy, Faculty of Law

In an Israel Science Foundation funded research study conducted last year, Prof. Rabinovich-Einy and Avital Mentovich (both from UofH Faculty of Law), together with J.J. Prescott (University of Michigan), explored the ability of technology—specifically, online judicial procedures—to eliminate systematic

group-based litigation outcome disparities. In comparing outcome disparities among minorities between online processes and face-to-face hearings, they found that online court proceedings offer new hope for reducing racial and age disparities by removing implicit and structural biases of the legal system. The study concluded that, under appropriate design schemes, ODR is capable of producing significantly fairer outcomes for members of disempowered groups. Rabinovich-Einy and her colleagues at the Bar Ilan Faculty of Law are currently working with the Ministry of Justice and the Israeli Office of Administration of the Courts, which are planning to adopt online dispute resolution processes in Israel.

Prof. Orna Rabinovich-Einy (Faculty of Law)

is an international expert in online dispute resolution, alternative dispute resolution and civil procedure, and was recently awarded the **ERC Consolidator Grant**. She is one of thirteen Israeli scientists to receive the prestigious grant this year, and the only grantee in the social sciences and humanities in Israel.

Her study, "The 'Vanishing Third Party': Access to Justice, Procedural Justice and Substantive Justice in the Age of Dispute Resolution Automation" examines the impact of the substitution of judges and mediators by automation on the accessibility and fairness of our justice system. SEA

Unprecedented deep-sea brine pools and related habitat hotspots **found**

> The discovery will shed light on deep sea biodiversity and the effects of climate change



Partner institutions:

Leon H. Charney School of Marine Sciences

Israel Oceanographic and Limnological Research (IOLR)

Ben-Gurion University of the Negev

Inter-University Institute of Marine Research

Mediterranean Sea Research Center of Israel (MERCI)

uring what they thought would be a routine underwater expedition, marine researchers were left stunned by what they saw on their computer monitors. A biodiverse underwater ecosystem, spanning hundreds of meters, boasting an amazing variety of marine life, including hundreds of deep-water sharks and the largest concentration of deep-sea shark eggs ever found.

"From a global marine research perspective, this discovery can have enormous implications," said Charney School's Dr. Yizhaq Makovsky, one of the initiative's leading researchers. "With temperatures in the region going up 20% faster than the global average, the Eastern Mediterranean Sea is regarded by many climate change experts as an early detection and warning system for what we can expect as global

temperatures increase over time. We believe that our discovery will provide crucial information for the sustainability and resilience of the marine ecosystem – not only in the Eastern Mediterranean, but also globally in other oceans."

High-resolution videos of the scene, including shark embryos moving inside their eggs, deepsea brine pools and a food web thriving on methane, were beamed to the surface from cameras mounted on a Remotely Operated Underwater Vehicle that was purchased with support from the Helmsley Charitable Trust and maintained by the Hatter Department of Marine Technologies.

"The fact that this rich biodiversity hotspot was hiding in plain sight off the coast of Tel Aviv was a shocking revelation for the team of researchers. Previously, we thought that this area was nothing more than an ocean desert," Makovsky explained. "This discovery highlights how little we know about the deep sea — not just off the coast of Israel, but around the world. This is a global challenge."

The deep-sea research initiative is aligned with University of Haifa's commitment to the UN Sustainable Development Goals, specifically focusing on SDG14: "Life Below Water" – aiming to save the ocean and its biodiversity and increase marine protected areas.

"Investigating the geological and environmental records concealed in this hotspot will provide a precise record of the impact of changes on the deep sea, which is essential for understanding local and global climatic changes," said Makovsky.



is a senior lecturer at the Dr. Moses Strauss Department of Marine Geosciences and the Hatter Department of Marine Technologies.





Harnessing the Power of Artificial Intelligence to Improve the Treatment of Depression

Treatment quality and effectiveness are strongly influenced by the therapeutic alliance established between a therapist and patient, particularly in patients with severe depression. Facial expression analysis during treatment sessions can provide a good indication of interaction quality.



The AI-based feedback system designed by UofH researchers was one of several projects featured in the **Data Science for Humanity Art Exhibition**, promoting multidisciplinary data science research for the benefit of society and the environment. The Exhibition was curated by the University's Data Science Research Center and the Kibbutz Galuyet 91 Gallery in Haifa.

While global headlines over the past two years were dominated by the medical and financial impact of the COVID-19 virus, under the surface a secondary public health crisis has been brewing that has the potential to be even more devastating. According to numerous studies, already high global rates of depressive and anxiety disorders were further exacerbated during the pandemic due to social isolation, loss of freedom and fear of illness and death.

n response to the surging demand for mental health services worldwide, researchers at UofH's School of Psychological Sciences and Departments of Computer Science and Information Systems are developing an AI-based feedback system that enables personalized treatment for clinical depression. "We are shining a light into the 'black box' of therapy," explains Prof. Sigal Zilcha-Mano, Director of the Psychotherapy Research Lab. "We wanted to understand what makes

some treatments more successful and identify the factors that contribute to the success of each patient's treatment."

The research team collected data from hundreds of therapy sessions with clinically depressed patients, and then utilized machine learning to automatically code a range of individual patient traits and characteristics. The data included patients' non-verbal measures, such as micro-facial expressions, voice patterns, and numerous biological markers, including fMRI and hormonal tests. Led by data scientists Prof. Hagit Hel-Or and Prof. Ilan Shimshoni, the researchers were then able to survey the large dataset and identify hidden patterns that are improving clinical efficacy and patient satisfaction.

The unique multidisciplinary team is also developing a smart algorithm based on computer vision and AI that will enable clinicians to individualize patient care. The App will provide immediate feedback that is especially useful in helping to identify productive interventions,

as well as predict potential complications, such as a breakdown in the bond between the therapist and client, known as 'alliance ruptures'. Early detection and repair of 'alliance ruptures' is a powerful predictor of successful therapy outcomes, and one of the keys to successful treatment. The digital tool will help predict ruptures early on to prevent dropouts and improve treatment efficacy among patients.

The treatment program is part of an ongoing study being conducted at the Laboratory and is funded by grants from the Israel Science Foundation (ISF), the National Institute for Psychology and an MIT-Israel Zuckerman STEM Fund. The 16-week program integrates a combination of modalities, including psychodynamic, affect-focused, and interpersonal therapy approaches. Study participants represent a range of socioeconomic backgrounds, ethnicities and religions.

"The results have been nothing short of amazing," says Prof. Zilcha-Mano, noting that the treatment relieved depression in 93% of participants. "Patients reported a much better quality of life and an enhanced sense of wellbeing. We are very encouraged by our positive outcomes and look forward to expanding our study and continuing to promote mental health."





Prof. Hagit Hel-Or Department of Computer Science Head, Computational Human Behavior Lab



Prof. Ilan Shimshoni Department of Information Systems Chair, Departmental MSc Program

Prof. Sigal Zilcha-Mano School of Psychological Sciences

Director, Psychotherapy Research Lab MOUNTAIN

WILDFOR WILDFOR WILDFOR

Creating resilience against wildfires

How do you stop a wildfire?

his question has driven fire research for a long time, but Avi Bar-Massada, Senior Lecturer in Biology and Environment at the University of Haifa at Oranim, is part of a 10 million euro EU research consortium, "firEUrisk," that's asking broader questions. "One of the worst consequences of climate change is the increase, worldwide, in the frequency of fires," says Dr. Bar-Massada, "so suppression is not enough. With more extreme conditions, such as longer periods of drought, the prediction is that things will worsen throughout Europe."

"frrEUrisk," which began last year, is a large Horizon 2020 project comprised of 38 partners from 18 countries focused on three goals: 1- better assessing the risk of wildfires in Europe; 2- reducing the risk of wildfire across Europe; 3- promoting societal adaptations to wildfire and improving preparedness and prevention of fire.

Dr. Bar-Massada plays both management and scientific roles in "firEUrisk." As manager, he leads 20 partners in the subgoal of "Exposure & Vulnerability." As scientist, he is creating maps of the Wildlife Urban Interface ("WUI")- those areas where human settlements are exposed to wildfire risk-for all of Europe. WUI is Bar-Massada's specialty. "It's difficult to determine all the variables and to understand all the processes that can cause a fire," he says. "You first have to define where settlements interact with vegetation. Which vegetation will catch fire and be 'fuel'? How far must a house be from a forest to be at risk? And on and on." Bar-Massada has developed methods for identifying WUI areas, utilizing geographic information systems (GIS) and

satellite data. "GIS," he says, "allows you to combine different kinds of spatial layers, such as data of settlements with maps of vegetation. How to combine the data sets is an art, as it requires thorough understanding of the process of wildfire spread across landscapes." In addition, Bar-Massada, working with a Spanish partner, uses statistical tools to develop ignition models, which are able to determine where and why wildfires will start. The WUI maps, and the results of the ignition models, are then handed over to a different group of scientists, who combine them with computer models of wildfire spread. "They run thousands of simulated fires, each in slightly different locations. The computer creates a map of where the fires will likely spread."

Dr. Avi Bar-Massada

is a landscape ecologist at the Department of Biology and Environment at University of Haifa at Oranim, where he heads the Spatial Ecology Lab.



Project partners, end users and collaborating wildfire-related initiatives gather for the annual hybrid annual plenary meeting, 2022.



Members of firEUrisk

66

firEUrisk is really multiple projects," says Bar Massada. "Scientists, first responders, social scientists, insurance companies, policy makers, community representatives, and private citizens work on the goals. It's a very integrative approach.



COUNTRIES from Europe, N. America and Oceania



fir**eu**risk



PARTNERS

Academia & Research Centers, Public Authorities, Companies and First Responders



YEARS (2021–2025)

MILLION EUROS in funding

A new era in UNDERWATER VISION

Imagine seeing through water: SeaErra computer vision algorithms remove water from underwater photos, enhancing their appearance as if they had been taken on land

BEFORF

AFTER

earning what goes on under the water surface has become increasingly important over the past decade as temperatures continue to rise and human activity has caused significant damage to marine ecosystems.

Until recently, one of the major obstacles to studying underwater life was poor visibil-

color and the prohibi-

tive costs of specialized

underwater cameras

combined to limit

researchers' abil-

ities to investigate

the effects of climate change on sea life.

entered into a new era

of underwater pho-

tography as a team of

experts in computer

vision algorithms,

engineering and

underwater imaging

systems are revolu-

tionizing underwater

research. Led by Prof.

Today, we have



Prof. Tali Treibitz (Hatter Department of Marine Technologies) is an award-winning scientist and founder of SeaErra Vision. She established the Marine Imaging Lab at the University of Haifa in 2014.

Tali Treibitz, the Marine Imaging Lab has created a line of products and solutions that are improving our ability to see better and farther underwater.

"The health of coastal ecosystems such as kelp forests, mangroves, seagrass beds and coral reefs are significantly impacted by activities that occur on scales of a millimeter or less. In addition, underwater organisms interact with one another and their environment in complex ways, which is difficult to recreate precisely in a lab," explains Prof. Treibitz. "To fully understand the impact of climate change on marine life, researchers need to make observations and record data in situ, under natural conditions."

The Lab's groundbreaking algorithms and tools were a natural fit for the second Carmel Innovation Fund established by Carmel-University of Haifa Economic Corporation Ltd., the University's technology transfer and commercialization company. The Fund's seed investment in SeaErra was key in bringing its patented suite of innovations to market. SeaErra's advanced AI algorithms and state-of-the-art technologies are set to play a critical role in the emerging fields of aquaculture (marine-based food products), marine infrastructure (building subsea structures) and

maritime security (identifying underwater threats).

"We are just getting started," asserts Prof. Treibitz. "Our lab is working on technological innovations that will have far reaching implications for the scientific community. Our goal is to create vision systems for



The Lab's new high-powered underwater microscope enables in situ observations of sea life at previously unattainable scales.

autonomous underwater vehicles that will produce powerful 3D visualizations of the seabed. These will deepen our understanding of climate change and influence sustainable environmental policies."

Covering more than 70% of the Earth's surface, the oceans are both the largest and least studied habitat on earth. This paradox is particularly surprising given that the oceans produce over half of the world's oxygen, are the #1 source of protein for more than a billion people, regulate our climate and create millions of jobs.



SeaErra Product Features:

Plug & Play Installation

Real Time / Post Processing

No depth limitation

Compatible with variety of cameras

3D printed reefs installed in the Gulf of Eilat will attract corals, fish and invertebrates that support regrowth of natural coral reefs.



Elka Nir CEO of Carmel-Haifa and Founding CEO of Carmel Innovations Funds "The innovative solutions being developed by SeaErra's team are addressing significant unmet needs in various areas

with a huge business impact.," says Elka Nir, CEO of Carmel-Haifa University Economic Corporation Ltd. "Carmel-Haifa and UofH researchers, together with Carmel Innovations and its supportive investors, co-founded the company and secured funding

since its inception in 2019. Carmel provides incubation services to the company and continues to work with SeaErra's team to assist in growing the compony, its business and partnerships."



CARMEL

Carmel-Haifa is the University's economic corporation responsible for protecting intellectual property and commercializing innovations through agreements and collaborations with global partners, investors and businesses. Since its founding, Carmel-Haifa has developed, supported, and accelerated technologies and early-stage startups. The company is also involved in promoting entrepreneurship and innovation across the University's campuses.

> nis 100M raised

10 subsidiary companies

100+

agreements for collaboration and funded research signed **2** Innovations Funds

Extensive Incubation services for its startup companies

NIS 2M+ / year raised from the Israel Innovation Authority MOUNTAIN

Who Owns the Skies?

UofH scientists are developing computational learning systems to protect birds and aircrafts in flight

In Israel, the Air Force, which trains at low altitudes, competes against great flocks of large-sized, migrating birds; hundreds of collisions occur, each year. "We are in a narrow land bridge, connecting Africa to Asia, and Europe between the Mediterranean and the Red Seas," says Nir Sapir, Associate Professor in the Department of Evolutionary and Environmental Biology. Every fall, over one million big birds—storks, pelicans, cranes, and raptors, leave Europe for Africa and pass through the skies of central and western Israel. The problem is equally hazardous in the spring when flocks reverse their trip. "When a flock of birds or a large bird is sucked into a jet's engine during flight, it usually causes severe damage," says Dr. Sapir.

"Last year, the Israeli Air Force spent about 4.5 million shekels to repair and replace bird-damaged engines. Engine failure could even result in an airplane crash, putting the pilots' lives at risk."

Dr. Sapir's lab team, including doctoral student Inbal Schekler who heads the project, is using three different kinds of radar to look at patterns of flocks of birds, to quantify and map the migrations, and to determine which meteorological factors, such as wind and temperature, affect bird whereabouts. They are working with the Air Force to provide them with a quantitative assessment of the risk of collision. "Our big breakthrough," says Dr. Sapir, "has been in computational learning: we have trained a



Dr. Nir Sapir

is the Director of the Animal Flight Lab at the Department of Evolutionary and Environmental Biology. Much of his animal movement study is based at the Hula Valley in the Upper Galilee.

computer to identify the flocks using images from weather radars. This information assists us to separate the planes and the birds to mitigate hazards to aircrafts. Now we are trying to develop real-time mapping of the flocks and this information will be provided to the Airforce control units and the pilots. Then, our next goal is to predict when and where bird flocks will occur three days in advance." Currently, more data is being collected to increase the predictability of the model, which may be fully operational next year. The model will be shared with northern European nations, which have problems with geese colliding with aircrafts.

Bird migration radar at Ramon

Prof. Nir Sapir, Inbal Schekler, Korin Reznikov, Yuval Werber, and Tsafra Tzori

"Israel is among the best places in the world to study bird migration, given the tremendous number and variety of species," says Dr. Sapir. "We are the only university in Israel

working on predicting, daily, the exact density of migrating bird flocks and the risk for collision." While ISF* and the University provided funding for the project, some of the tools used are based on a COST Action, an

EU-funded research network program. "We continue to work with colleagues from several European countries, as well as from the US, to share tools that are helping us tackle this worrisome, and potentially dangerous situation," says Dr. Sapir.

*ISF: Israel Science Foundation



CITY

The Power of Math

How do we prepare our children for a future we can't predict and careers we can't even imagine?

ccording to Prof. Roza Leikin, Dean of the Faculty of Education, the answer is clear, "The number of STEM (science, technology, engineering, and mathematics) jobs are growing as businesses and government agencies increase their use of big data to make decisions. In this environment, a carefully crafted mathematics curriculum – one that nurtures creativity, cognitive flexibility and collaborative skills – provides students with the knowledge and skills they need to succeed in STEM areas and beyond."

The Faculty of Education, Israel's largest and most comprehensive faculty of education, is playing a central role in shaping mathematics education in the country. Home to the National Teachers' Centers for Elementary and High School Mathematics Education, the Faculty trains and fosters professional leadership in Mathematics education in Israel's four education tracks (state-secular, state-religious, independent religious and Arab).

Mathematics education in Israel became a high-profile issue seven years ago when then Minister of Education, Naftali Bennett, instituted a nationwide plan to increase the number of students studying advanced math (5 units) for the Bagrut (Matriculation) exams. Faced with more heterogeneous classrooms, math teachers across the country required additional guidance to ensure that all students succeeded in meeting the higher academic standards.

Our faculty members became the national focal point for building capacity within the education system. The Faculty's Department of Mathematics Education developed researchbased curricular materials that were grounded in emerging trends of educational neuroscience, educational technology and awareness of the importance of creativity. In addition, the Department supported educator networks where math teachers share ideas and resources, discuss best practices and receive constructive feedback.

Prof. Roza Leikin is Dean of the Faculty of Education and a professor of Mathematics Education and Gifted Education. "Through rigorous research, innovative curricular programs and professional development opportunities we are raising the overall level of literacy and proficiency of students in Israel in STEM and Humanities. Our goals are to prepare our graduates to take on leadership roles in the Israeli education system and help students reach their fullest potentials."

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The Department of Mathematics Education offers specializations in: Mathematical Problem Solving Mathematical Creativity and Ability Mathematics Teacher Education Mathematical Thinking and Brain Technologies in Mathematics Education

The Young Scientists Hub:

Introducing Youth to Environmental Studies, the Arts and Society he University of Haifa is launching a new educational outreach program designed to expose young students from the full spectrum of Israeli society to the arts and sciences – and spark their interest in higher education.

The Hub will draw on the full range of UofH's academic offerings to introduce students to fascinating topics through hands-on activities, problem solving workshops, laboratory tours, Science Days and online classes.

Students will choose from a menu of engaging course offerings including (partial list):

- \rightarrow The Power of Mathematical Thinking
- \rightarrow Climate Change Mitigation & Adaptation
- \rightarrow Current Topics in Marine Biology
- \rightarrow Entrepreneurship and Social Innovation
- \rightarrow Astrophysics Reaching for the Stars
- Neuroscience and Cognition
- \rightarrow Cyber Security & Online Privacy
- \rightarrow Leadership, Diplomacy and Mediation
- \rightarrow Chinese Culture and Language
- \rightarrow Art and Ecology

We believe that early exposure to a fun and engaging academic experience will help youth in northern Israel develop a sense of belonging in higher education and lay the groundwork for future success.



THE PAST, PRESENT AND FUTURE OF JEWISH GIVING

Herta Amir – staunch supporter of the University of Haifa and the State of Israel as well as Lifetime Member of the University of Haifa's Board of Governors – shared her perspective on philanthropy and the changing landscape of Jewish charitable giving during a recent visit to University of Haifa.



President Ron Robin awards Herta Amir with an Honorary Life Membership of the University of Haifa's Board of Governors, 2021.

Why is philanthropy important?

As humans, we strive to maximize our wellbeing, yet this is dependent on many factors. Once a person has met their basic needs, they

are faced with the question of what to do with their excess wealth – and this is a subjective decision. Both Paul and I are survivors

of the most heinous crimes against the Jewish people. We shared the same vision for the future of the Jewish nation and we chose to set aside part of our wealth to invest in Israel's education and culture, and the advancement of academic excellence in medicine, the social sciences and arts to help the Jewish nation not only survive, but thrive and have a good quality of life.

Until his last breath, Paul remained committed to the development of Haifa and northern Israel, a region he felt was somewhat neglected. He was one of the founders of Kibbutz Yehiam in the Western Upper Galilee, which he joined during the War of Independence (1947). For Paul, University of Haifa was a beacon of learning and discovery and he was especially grateful for its close proximity to his home.

There are many worthy causes.

PHI LAN THRO PY

is the love of humanity

How do you decide which causes to support?

It's a very subjective decision. To begin with, we believe in maximizing wellbeing

and a good quality of life. We choose projects that are close to our hearts and evaluate each one based on its merits. For

us, safeguarding the existence of the Jewish people in the State of Israel and ensuring that it secures a prominent role on the international scene have been driving forces. Ultimately, we choose to invest in high quality projects.

What can you tell us about the changing landscape of Jewish charitable giving in the US?

Over the past several years, this topic has been a popular dinner table topic. We have seen clear generational changes in Jewish giving in recent years. Jewish causes have less appeal for younger donors. Though they take pride in Israeli innovations, from water technology to a long list of technology companies in the Silicon Valley, they identify less and less with the preservation of the Jewish people. For young millennials, world causes such as global warming and pandemics are at the top of their philanthropic agendas. This worrisome trend is also true in Jewish communities around the world. I believe that growing up in an era of relative calm, this generation is simply unaware of the dangers and brutality of antisemitism.

About Herta Amir

Herta Amir was born in Czechoslovakia and grew up in the United States. For most of her life she has been an active leader in the Los Angeles Jewish community. She holds an undergraduate degree from Queens College, New York and continued her postgraduate studies at Harvard before earning a degree in Economics from the University of California. She began her professional career as an economist at the US National Bureau of Economic Research and then worked for more than a decade in the Economics Department of the prestigious Rand Corporation, an American nonprofit global policy think tank.

In 1972, she joined her husband Paul (of blessed memory) in establishing and running the Amir Development Co, a real estate company that builds, operates and manages dozens of real estate ventures in several southwestern states in the US. Together they launched the Herta & Paul Amir Family Foundation supporting educational and cultural institutions in Israel and the US. She also served for numerous years on the Board of Directors of the American Israel Public Affairs Committee (AIPAC), the largest Jewish lobby for Israel in the United States.



Paul and Herta Amir with scientists from the Faculty of Social Sciences, 2016.

The Amir Family Legacy

Securing a better future in Haifa & Northern Israel

erta Amir and her late husband Paul are among the University of Haifa's most generous and dedicated supporters. The Amir's have provided support of academic excellence through provision of scholarships for Returning Scientist Program, outstanding PhD students, the National Security Studies Center and major physical and academic development projects of the University including the Herta and Paul Amir Faculty of Social Sciences building and the Dr. Reuben Hecht Arts Center. In addition, Herta and Paul served

as esteemed members of the University's Board of Governors.

Paul is a past President of the American Society of the University of Haifa, a role he held for many years. The University awarded them both with Honorary Doctorate degrees – to Paul in 2010 and Herta in 2016 – for their philanthropic activities and deep commitment to educational and cultural institution in Israel, including the University of Haifa, Rambam Health Care Campus, the Tel Aviv Museum of Art and the Israel Museum, and leadership roles in the Los Angeles Jewish Community.

As part of the festive inaugural events of the University of Haifa's 50th Board of Governor's Meeting, Herta will participate in three ribbon-cutting ceremonies celebrating the dedication of: The Herta and Paul Amir Health Sciences Building, The Herta and Paul Amir Technology Complex, and the completion of the Herta and Paul Amir Faculty of Social Sciences Building.



Herta and Paul Amir, 2016.

We are enormously grateful to the Amir family for their generosity to the University of Haifa and commitment to the State of Israel.



Herta Amir receives an Honorary Doctorate from the University of Haifa, 2016.



REPORT OF THE PRESIDENT & 31 & THE RECTOR 2022



RHODES SCHOLARSHIP

Haroon Avgana 2022/23 Rhodes Scholar MSc, School of Psychological Science



Kim Kobo MA, Department of Marine Biology, and The Morris Kahn Research Station Instructor, EcoOcean Education Unit

Haroon Avgana is University of Haifa's third Rhodes Scholar in four years

Kim Kobo is the first Israeli researcher to identify a sperm whale off the coast of Haifa

The Experimental Psychology, is one of only two Israeli Rhodes Scholars named this year. Next year, Avgana will pursue a doctorate in behavioral neurobiology at the University of Oxford, focusing on the effects of psychedelic drugs.

At Oxford, he will continue his current research at the Laboratory for Learning & Memory Lab, where he is studying the underlying effects of MDMA, known as 'ecstasy', and its therapeutic effects on treating post-traumatic stress syndrome (PTSD).

A first generation university student, Haroon was born and raised in Kfar Kama, a Circassian town in the Lower Galilee. Upon completing his military service in the IDF's Combat Engineering Unit, he enrolled in UofH's dual degree program in Psychology and English Literature.

In addition to his academic interests, Haroon is passionate about creating an open dialogue between Jewish and Arab students. He served as a coordinator of the Maayan Bamidbar ("A Wellspring in the Desert") study program for two years, which connects Jewish and Arab students from University of Haifa and the Technion. He also volunteers at the University's Dean of Students' mentoring program, which provides extra academic and personal support to first year minority students to increase their chances for success.

Avgana attributes his interest in promoting a 'shared society' to his Circassian heritage, where he was exposed to Arab and Jewish cultures, and his degree in English literature. "In our English classes, Jews and Arabs all spoke the same language, which provided a neutral platform for exchanges of ideas, and facilitated cross-cultural understanding." k im Kobo, a graduate research student from the Charney School of Marine Sciences, is the first Israeli scientist to be honored with a sperm whale named after her. She photographed the whale – a rare sighting



in Israel's Mediterranean waters – while participating in an international research expedition with Greenpeace Israel. Kobo spotted a pod of eight whales off the Haifa coast, and was able to photograph the tail of one of the whales. The sighting marked the first time sperm whales were documented in Israeli territorial waters.

A whale's tail is a kind of "fingerprint" that shows unique features like scars and patterns. Researchers dubbed it the "Israeli" whale after they confirmed it had never been cataloged by any other research station in Greece, Cyprus or Turkey.

"It was an honor to be chosen as one of two students to take part in this exciting expedition – the most comprehensive acoustic survey of marine mammal population ever conducted in Israeli waters," says Kobo. "The observations, which focus on the deep sea beyond the land shelf area of Israel, are especially important because sperm whales in the Mediterranean are on the verge of extinction. We are using hydrophones to acoustically identify marine mammals and we hope that the data will help us fill in the gaps about marine mammal populations in our region."

Sumaiiah Al Mheiri BA, The Cheryl Spencer Department of Nursing

Sumaiiah Al Mheiri is making history as the first female Emirati student to attend an Israeli university, and in Hebrew!



"Queen of the Waves"

Inna Braverman, Class of 2010; BA, Political Science and English Literature; CEO, Eco Wave Power

Spencer Department of Nursing, with plans to become a certified nurse-midwife. She visited Israel for the first time in 2020 as part of the first Emirati delegation of social activists and opinion leaders from Gulf



countries. Al Mheiri established an online language exchange group for Hebrew and Arabic speakers, making her a prime candidate to be included in the historic visit. In October 2022, she made history again when she arrived in Haifa to begin her bachelor's degree program in nursing.

"All my life I've managed

to avoid thinking in terms of barriers," admits Al Mheiri, "for me it's about overcoming challenges. After attaining my degree in electrical engineering and working in the profession for a number of years, I realized my calling was elsewhere. Just then, the COVID-19 pandemic hit and it made me rethink my future path. In my leisure time, I started reading ancient Semitic writings such as Aramaic and realized it would be easier if I knew Hebrew. After discovering there were no online Hebrew learners groups for Arabic speakers in my region, I decided to start one myself – which today has over 400 members. Despite being a woman and being on my own, I feel very comfortable in Haifa and love travelling around Israel. I appreciate the support from the Office of the Dean of Students and classmates, and am looking forward to beginning my nursing practicum."



ALUMNUS SPOTLIGHT

nna Braverman was just a newborn baby when the Chernobyl nuclear power plant exploded, spreading radiation as far as Cherkasy, her hometown.

At age four, she and her family immigrated to Israel and settled in Akko. Growing up she always felt she was given a second chance at life and wanted to do something meaningful. She attended the University of Haifa and after graduat-

ing in 2010 with a BA in Political Science and English Literature. In her mid-twenties, she co-founded Eco Wave Power with Canadian entrepreneur David Leb. The company developed a pioneering technology using floaters attached to existing structures on land to produce cost-efficient green electricity from ocean waves. In May 2016, Eco Wave installed a wave-energy power station in Gibraltar – the first such station in the world. Today, it is a multimillion dollar technology company with power stations around the world, including the recently installed station at the Jaffa Port. The Jaffa project aims to supply energy to 325,000 households in the Tel Aviv-Jaffa area.

Braverman was recognized by *Wired Magazine* as one of the "Females Changing the World", by *Fast Company* as one of the world's "Most Creative People in Business for 2020" and is the winner of the United Nations "Global Climate Action Award". She hopes to encourage other women to start businesses. "We hire a lot of interns and I have a bit of preference in my heart for women," admits Braverman. "I recently participated in a conference organized by Alliance Global Partners with 16 Israeli women who manage and invest in Israeli companies. It was the first time that I remembering sitting in a room with only women and it felt so comfortable. Everyone came out feeling high."

UNIVERSITY OF HAIFA CONFERS ITS HIGHEST HONOR, DOCTOR OF PHILOSOPHY, HONORIS CAUSA UPON

Elie Horn founder of Ahavat Olam Scholarship Program

lie Horn is the Founding Partner and Chairman of Cyrela Brazil Realty, recognized as one of the largest building and real estate companies in Brazil. He is a staunch friend of the State of Israel and a generous philanthropist, and he and his wife Susy became the first Brazilians to sign the *Warren Buffett Giving Pledge*, in which they pledged to contribute 60% of their wealth to charitable causes over their lifetimes.

Elie Horn was born in 1944 to a Jewish family in Aleppo (then under the French Mandate for Syria). His family immigrated to Brazil when he was 11 years old. As a teenager, he began working with his brother, Joe Horn, in developing the city of São Paulo, gaining experience in real estate. In 1962, he founded Cyrela Brazil Realty, and grew it into the country's largest publicly traded developer of high–end residential buildings. Cyrela employs over 15,000 people and operates in 17 states and 66 cities in Brazil, Argentina and Uruguay. Horn stepped down as CEO of Cyrela in 2014 but remains on its Board of Directors to this day.

Elie Horn is a longtime friend of the University of Haifa and has served on the University's Board of Governors for many years. His love of Jewish texts and traditions led him to establish *HaGaon M'Vilna Campus Synagogue* and support numerous Jewish educational programs and scholarships strengthening Jewish life on campus.

Recently, the University announced a transformational commitment by Mr. Horn to establish the **Ahavat Olam Scholarship Program**, the largest donation ever made in Israel for student scholarships. The Program aims to strengthen Israeli society and ensure that young adults are given equal opportunities to succeed.

Elie and Susy have three children and reside in São Paulo, Brazil.

66

When I was 35, my father decided to donate all his fortune to charity; my goal in life is to emulate him.



Excerpts from Citation

"In recognition of his infinite giving spirit which led to a lifetime of selfless, dedicated and impactful philanthropy; for his support of the State of Israel and its people to whom he has shown great love; ... for his ongoing commitment to the University of Haifa manifested in the extraordinary and transformational Ahavat Olam Scholarship Program ... that will change for the better the reality of thousands of students... for his vision and involvement in enhancing Jewish life on campus with the establishment of the HaGaon M'Vilna Campus Synagogue and Kiruv Programs ... and for his ... leadership roles of the Brazilian and Global Jewish communities.



*For updated figures on funds raised visit the BE 50 Campaign site.

UofH BE50 Capital Campaign

University of Haifa kicked off its **\$150M BE 50 capital campaign** during the 49th Meeting of the Board of Governors. BE 50, the University's largest ever fundraising and engagement initiative, was launched to build upon the successes of the past 50 years and position the university to thrive for the next 50.

Your support with the BE 50 Campaign will help the University of Haifa to fulfill its founding mission: ensure that all deserving students are able to achieve their full academic potential, regardless of their socio-economic backgrounds; enable the next generation of young researchers to continue to make new discoveries and drive innovation; and help to make Israeli society more sustainable, equitable and resilient.

The BE 50 campaign is laying the groundwork for a future full of opportunities and possibilities.



A Legacy of Giving

University of Haifa is sincerely grateful for the ongoing support of its generous donors.

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International Desks:

Asia Pacific Desk

Latin American Desk

French Speaking Countries Desk

EUROPEAN RESEARCH

COUNCIL GRANTS* Prof. Guy Bar-Oz School of Archaeology and Maritime Cultures The restoration of heritage grape cultivars in the Negev desert > NIS 0.54 M (\$160,000)

Dr. David Friesem School of Archaeoloav and

Maritime Cultures Neolithic coastal settlements and responses to environmental dynamics > NIS 5.6 M (\$1,678,000)

Prof. Orna Rabinovitch *Faculty of Law*

The Vanishing Third Party: Access to Justice, Procedural Justice and Substantive Justice in the Age of Dispute Resolution Automation > NIS 7.3 M (\$2,187,000)

EUROPEAN COMMISSION Prof. Dror Angel School of Archaeology and Maritime Cultures

"Green Deal" funding for his project ILIAD – Integrated Digital Framework for Comprehensive Maritime Data and Information Services > **NIS 2.0 M (\$600,000)**

Prof. Muki Shpigel

Charney School of Marine Sciences COST Action initiative to exploit the potential of marine seaweeds in Europe > NIS 1.9 M (\$570,000)

EUROPEAN COMMISSION – DEVELOPMENT & COOPERATION – EUROPEAID Dr. Tammy Harel Ben Shahar and Dr. Dalit Ken-Dror Feldman

Faculty of Law

Transparency and explainability in algorithms and AI – preserving human rights in the algorithmic state > NIS 1.4 M (\$429,000)

THE EDMOND J. SAFRA

FOUNDATION The Edmond J. Safra Brain Research Center for the Study of Learning Disabilities

Continuing research and training in the field of brain science and early learning > NIS 6.5 M (\$1,950,000)

ISRAEL SCIENCE FOUNDATION (ISF) Awarded to 11 Faculty Members

Psychology, Education, Computer Science, Marine Sciences, Neurobiology and Human Biology, and Evolutionary and Environmental Biology > NIS 14.5 M (\$4,330,000) in total

ISF AND NSFC: ISRAEL-CHINA PROJECT PROPOSALS IN EXACT SCIENCES Dr. Nicolas Waldmann Dr. Moses Strauss Department of Marine Geosciences Pliocene precipitation variability and environmental impact across mid-latitude Asia

JOHN TEMPLETON FOUNDATION Prof. Edi Barkai

Sagol Department of Neurobiology Studying the biophysical mechanisms underlying epigenetic inheritance of enhanced complex learning capabilities > NIS 3.7 M (\$1,110,000)

Prof. Adi Livnat

Department of Evolutionary Biology Applying novel DNA technology to measure the rates of de novo mutations in genomes > NIS 3.1 M (\$930,000)

MERC GRANT (MIDDLE EAST REGIONAL COOPERATION)

Prof. Andrea Ghermandi Department of Natural Resources and Environmental Management Prof. Gerchman Yoram University of Haifa at Oranim Transforming sewage sludge into biofu > NIS 1.3 M (\$400,000)

MORTIMER B. ZUCKERMAN INSTITUTE

Dr. Geffen Kleinstein School of Public Health Prediction models for genetic and inherited factors associated with cance > NIS 3.2 M (\$960,000)

THE TRUMP FOUNDATION **Dr. Michal Avalon**

Department of Mathematics Education Developing best instructional practices kits in applied mathematics for teacher training > NIS 3.0 M (\$897,000)

US DEPARTMENT OF DEFENSE (DOD) GRANT **Prof. Shlomo Wagner** Sagol Department of Neurob<u>iology</u>

Unraveling the mechanisms promoting sex differences in ASD using a POGZ mouse model

> NIS 0.67 M (\$200,000)

HECHT MUSEUM RENEWAL & EXPANSION PROJECT



MUSEUM EXPANSION AND RENEWAL Reuben and Edith Hecht Trust > NIS 3.25 M (\$972,000)

GERMAN-SPEAKING JEWRY HERITAGE WING Charitable Donations in the combined amount of > NIS 11.7 M (\$3,500,000)

NEW SCULPTURE GARDEN Reuben and Edith Hecht Trust > NIS 3.0 M (\$897,000)

> MAJOR RESEARCH PARTNERSHIP



THE AUDACIOUS PROJECT CETI (CETACEAN TRANSLATION INITIATIVE)

A scientist-led nonprofit organization and TED Audacious Project to decipher the communication of sperm whales.

Project COO, Prof. Dan Tchernov Charney School of Marine Sciences Project Scope:+\$ 50M*

*Funding provided by Dalio Philanthropies and Ocean X, Sea Grape Foundation, Rosamund Zander and Hansjorg Wyss, and other private donors PRIZES AND AWARDS

DISTINGUISHED SCIENTIFIC AWARD FOR THE APPLICATIONS OF BEHAVIORAL THEORY AND RESEARCH (from the International Society for the Study of Behavioural Development) Prof. (Emeritus) Avi Sagi-Schwartz Center for the Study of Child Development

DIZENGOFF PRIZE FOR PLASTIC ARTS (2021) Prof. Itzhak (Itche) Golombek Department of Fine Arts

HONORARY AWARD (YAKIR) THE MIDDLE EAST AND ISLAMIC STUDIES ASSOCIATION OF ISRAEL (MEISAI) Prof. Amatzia Baram Department of Middle Eastern and Islamic Studies

INDUCTED INTO THE ISRAEL ACADEMY OF SCIENCES AND HUMANITIES Prof. (Emeritus) Sammy Smooha Herta and Paul Amir Faculty of Social Sciences

JACOB AND WILHELM GRIMM PRIZE Prof. (Emerita) Fania Oz-Salzberger Faculty of Law

MICHAEL HUBERMAN AWARD FOR EXCELLENCE IN RESEARCH ON THE LIVES OF TEACHERS (from the American Educational Research Association) Prof. Lily Orland-Barak Dean of Graduate Studies Authority ISRAELI ANTHROPOLOGICAL ASSOCIATION'S LIFETIME ACHIEVEMENT AWARD Prof. (Emerita) Tamar Katriel Department of Communication

ISRAEL POLITICAL SCIENCE ASSOCIATION LIFETIME ACHIEVEMENT AWARD Prof. Gabriel Ben-Dor School of Political Science

KNIGHT OF QUALITY GOVERNMENT AWARD IN THE ACADEMIC CATEGORY (from the Movement for Quality Government in Israel) Dr. Doron Navot School of Political Science

NATIONAL GEOGRAPHIC EMERGING EXPLORER (2021) Dr. Aviad Scheinin Morris Kahn Marine Research Station

THE ORDER OF MERIT OF THE FEDERAL REPUBLIC OF GERMANY (BUNDESVERDIENSTKREUZ) Prof. (Emeritus) Eli Salzberger Faculty of Law

Prof. (Emerita) Fania Oz-Salzberger *Faculty of Law*

THE STRAGE-BGU AWARD FOR EXCELLENCE IN ENVIRONMENTAL SCIENCES Prof. Andrea Ghermandi and Michael Sinclair

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A Special Salute to UofH's Israel Prize Winners

1967 **Prof. Benjamin Akzin** *First Rector of UofH*

1992 **Prof. David Navon** Department of Psychology

1994 **Prof. Arie Shapira** Department of Music

1995 **Prof. Nathan Zach** Department of Hebrew and Comparative Literature

1995 **Prof. A. B. Yehoshua** Department of Hebrew Literature

1997 **Prof. Yitzhak Zamir** Faculty of Law

1999 **Prof. Miriam Yardeni** Department of History

2000 **Prof. Meir Wieseltier** Department of Hebrew and Comparative Literature

2001 **Prof. Gavriel Salomon** *Faculty of Education*

2002 **Prof. Asher Koriat** Department of Psychology 2003 **Prof. Zvi Ben-Avraham** Charney School of Marine Sciences

2006 **Prof. Miriam Ben-Peretz** *Faculty of Education*

2008 **Prof. Sammy Smooha** Department of Sociology

2008 **Prof. Tuvya Ruebner** Department of Hebrew and Comparative Literature

2011 **Prof. Ya'acov Dorchin** School of the Arts

2016 **Prof. Eviatar Nevo** *Institute of Evolution*

2019 **Prof. Deborah Bernstein** Department of Sociology

2020 **Prof. Avi Ben-Zvi** School of Political Science

2021 **Prof. Nitza Ben-Dov** Department of Hebrew and Comparative Literature

2021 **Prof. Ariela Lowenstein** Department of Gerontology

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REPORT OF THE PRESIDENT AND THE RECTOR 2022

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UNIVERSITY OF HAIFA

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