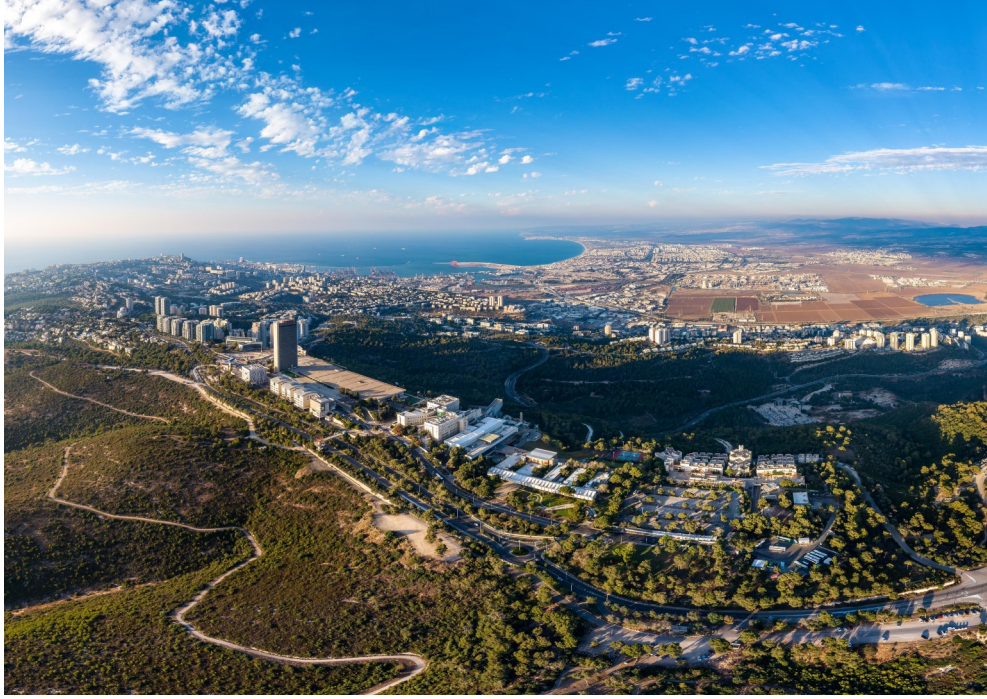
אוניברסיטת חיפה
UNIVERSITY OF HAIFA
جامعة حيفا



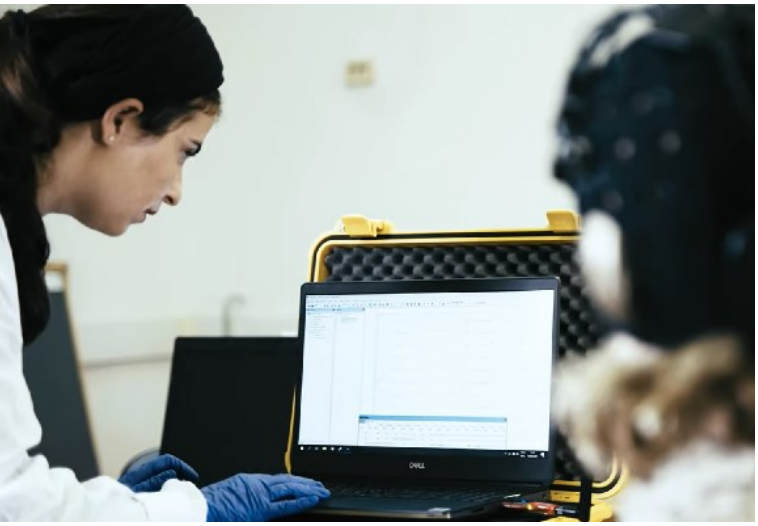
Supporting Pioneering Research

The Integrative Pain Laboratory (iPainLab)

iPainLAB

Developing new ways of measuring, preventing, and treating chronic pain

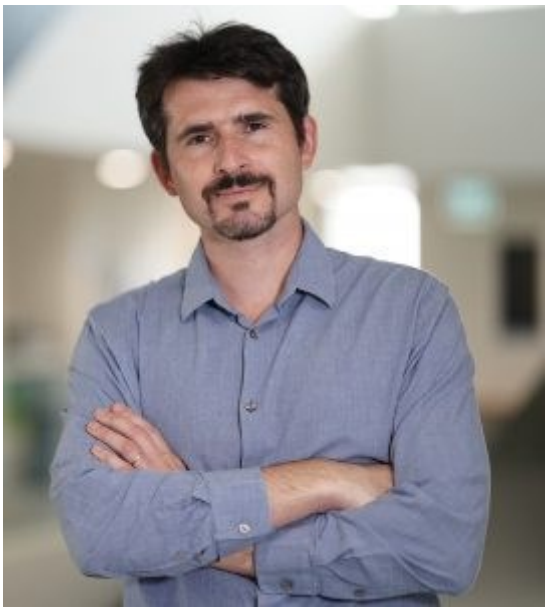
Chronic pain, the main cause of the opioid crisis and one of the leading causes of long-term disability, affects 30% of the worldwide population, with costs exceeding those of heart disease, cancer, and diabetes combined. Unfortunately, current biochemical treatments for chronic pain (painkillers, injections and surgeries) are inadequate and do not relieve pain for many individuals. Instead, they can trigger a vicious cycle of escalating drug use and increased pain. In the United States alone, over 50,000 lives are lost each year to opioid misuse. Developing safe and effective strategies to help reduce pain without opioids has rapidly become a global priority.



Using Advanced Technologies to Alleviate Chronic Pain

Researchers at the iPainLab are using neuroimaging, face and speech recognition systems, advanced sensors and machine learning to assesses a patient's pain levels in real-time and trigger immediate interventions. In addition, the lab is developing a new generation of therapeutic approaches for treating chronic pain that demonstrate strong efficacy and scalability.

Our goal is to **drive innovative solutions** by serving as a bridge between academia, healthcare providers and industry.



Dr. Pavel Goldstein

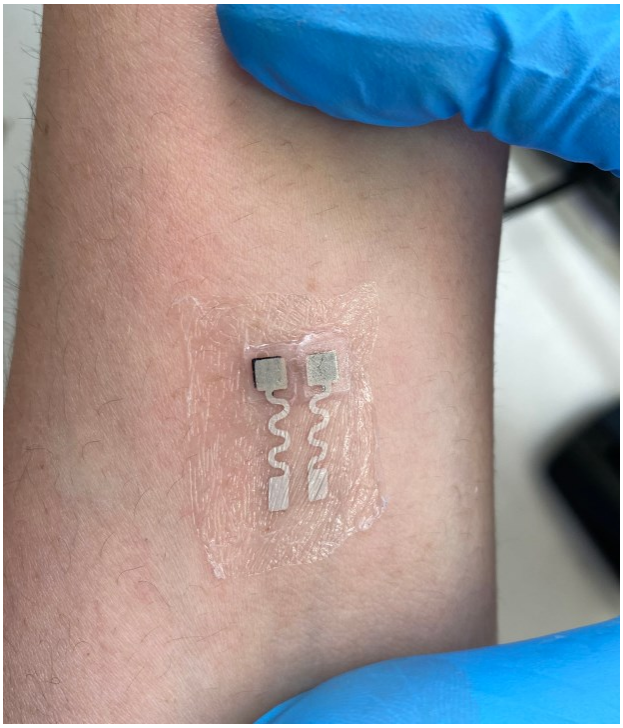
“Pain is a very complex system that has played an important role in human survival. It helps us learn to not hold our hand in a fire or be careful with a knife. However, it turns out that the pain system may break down, leaving many people with persistent pain with no clear reason for it. In such cases, the line where the damage caused by this system outweighs the benefits is still unclear for us. Chronic pain, defined as a significant pain that lasts more than 3 months, includes various conditions, such as musculoskeletal pain, headaches, fibromyalgia, CRPS, IBS and many others.

Although we are starting to understand the mechanisms of chronic pain, I believe the big discoveries will surprise us in the future.”

CUTTING-EDGE RESEARCH

PainRadar- Skin-Based Chronic Pain Detection

We are using sensors attached to electronic skin to gather data on pain levels in patients suffering from fibromyalgia. The resulting neurophysiological and biochemical information is then being analyzed by powerful AI software to produce more exact pain markers that we are using to create a fully automated, real-time pain detection system.



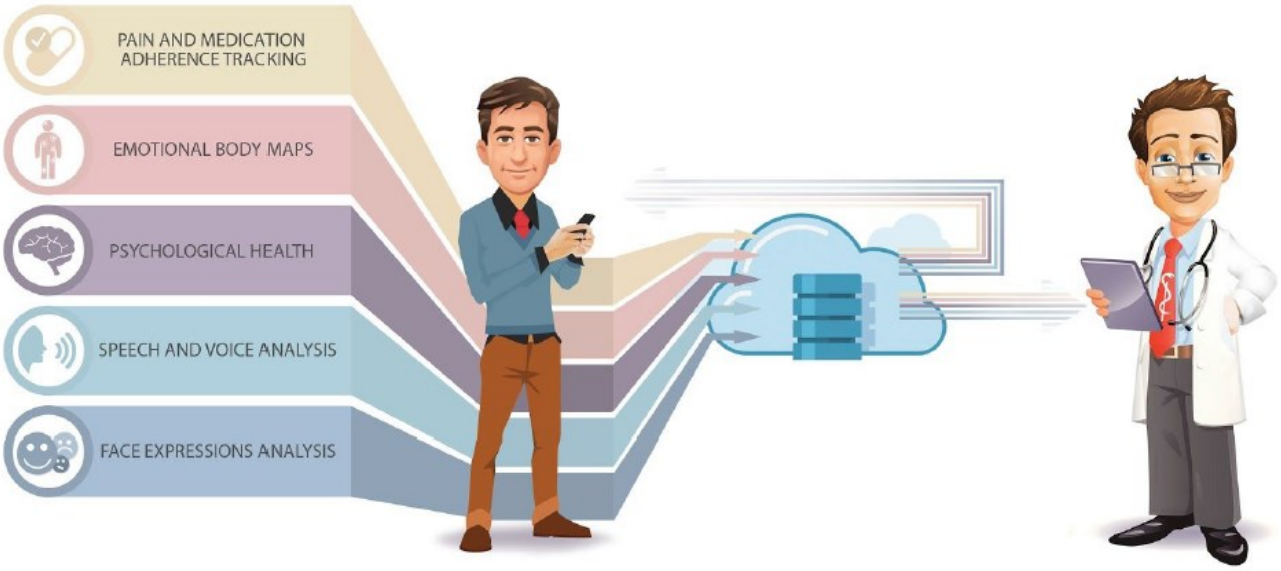
The automated pain tracking system has considerable potential to improve the efficacy of pain treatments, by providing just-in-time feedback and triggering interventions. The project will contribute fundamental scientific knowledge about biochemical and neurophysiological signs of real-life pain, lay the groundwork for translational efforts to improve outcomes of pain self-management and reduce opioid use. The project is being conducted in collaboration with Professor Hossam Haick (Technion) - a world leading expert in nanomaterial-based devices.

Mobile Platform for Tracking Chronic Pain

Chronic pain patients show abnormal and maladaptive responses to life stressors, resulting in depression, anxiety, fatigue. These changes, in turn, amplify pain—creating a vicious cycle of increasing disability. As a result, 40-50% of chronic pain patients suffer from some form of mental illness.

We are developing a unique mobile platform that:

- Allows patients to record and track the interactions between pain, emotion and bodily experiences
- Delivers information about those experiences to clinicians enabling personalized treatment
- Provides insurance companies with feedback about the status and health trajectories of patients



PainStory.Science

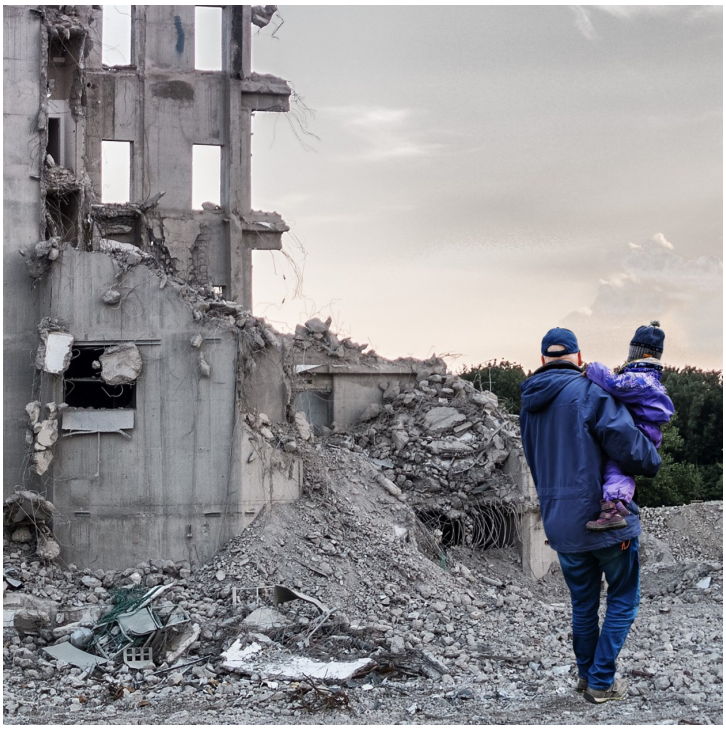
We are developing a completely novel and intuitive digital platform, PainStory.science, that allows us to collect audio recordings from pain patients sharing their experiences of living with chronic pain. As they tell their stories, they will rate their pain levels and complete a series of psychosocial surveys.

Using advanced machine learning approaches, the PainStory platform will “listen” and analyze patients’ narrative content, their vocal nuances and associated facial expressions to develop a personalized pain assessment. The PainStory assessment will be used for better clinical evaluation, and digital follow-up between the clinical visits. Our solution will be easily adoptable and scalable.

Helping Ukrainians Cope

The iPainLab is spearheading a groundbreaking initiative to help Ukrainians manage the chronic pain they may have endured as a result of the Russian Invasion.

The free eight-week therapeutic course, entitled “Ukraine Without Chronic Pain”, is being taught remotely in Ukrainian and Russian. It is being offered to citizens of the country who suffer from chronic pain as a result of experiencing physical and/or mental trauma. Devised in collaboration with the Ukrainian Society of Regional Analgesia and Pain Therapy, the course will consist of a two -hour meeting each week that will provide participants with lectures, exercises, and homework. **More then 500 chronic pain sufferers have already registered for the program.**



We invite you to partner with us to support innovative research that is improving quality of life in Israel and around the world.

BUDGET		
Item	**Details**	**Expenses USD**
Personnel	M.A., PhD scholarships and post-doc fellowships	100,000/year
	External Consulting	25,000/year
Digital & Web Platforms	Website and app development	100,000
Laboratory Equipment	For measuring neurophysiological markers	150,000
Experimental Costs	Patient participation costs	20,000

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