Fascinated by the fundamental processes of self-assembly, I strive to understand the mechanisms underlying the formation of biological ultrastructures and how these complex “machines” function coherently as networks. My first introduction to molecular self-assembly was during my MSc studies, under the supervision of Prof. Ehud Gazit at Tel Aviv University, when I investigated the role of aromatic residues in the self-assembly of short peptides into ultrastructures and hydrogels. Using different techniques, I defined their structural and biophysical properties, as well as their role in the assembly process. These studies paved the way for my PhD research, under the supervision of Prof. Itamar Willner at the Hebrew University of Jerusalem, in which I went on to explore the self-assembly of nucleic acids. By utilizing the specificity and unique features of the DNA sequence, I was able to develop highly sensitive biosensors, innovative molecular machines, and DNA-computing systems, which are emerging as powerful tools for smart diagnostics and nanomedicine.

For my postdoctoral training, I wanted to apply my knowledge of molecular self-assembly to fundamental research questions in the field of biomolecular complexes. I joined the lab of Prof. Jonathon Howard at Yale University to investigate the cytoskeleton of cilia. I was able to develop a novel biochemical technique to purify, for the first time, the building blocks of the ciliary scaffold. This allowed me to gain important insights into ciliary length stability and post-translational modifications. Based on this work, **I received two international postdoctoral fellowships (EMBO and HFSP fellowships), as well as travel awards to present my work at international conferences.** To complement my background in biochemistry and biophysics, I carried out a second postdoc position in the lab of Dr. Xiaolei Su at Yale University, where I investigated the assembly of T-cell lymphocyte microvilli. While there are some common themes between cilia and microvilli, the transition enabled me to vastly expand my experimental and theoretical toolbox. Moreover, the different perspectives I gained from these more cell biology-oriented approaches will be invaluable in developing my future research goals.

I recently joined the Azrieli Faculty of Medicine at Bar-Ilan University as a senior lecturer. Accepting this position allowed me to return to Israel, together with my family, and to support Israel’s northern region, which is in need of medical and technological development.

The exceptional academic and research environment at the faculty will provide the perfect setting to establish my independent research career. Thus, I am confident that I will be able to thrive here, building an innovative, productive, and extramurally funded research program. **In my lab, we will apply interdisciplinary approaches—classic biochemical methods together with nanotechnological techniques—to answer basic questions related to cilia and associated pathologies (ciliopathies).** We will use cutting-edge microscopy, including total internal reflection fluorescence (TIRF) microscopy and atomic force microscopy (AFM), as well as microfluidics systems.

As a mentor and an educator, **my goal is to provide my students with an inclusive and supportive learning environment to help them develop as the next generation of Israeli scientists**. As such, I will encourage them to express their scientific creativity and capabilities, develop their skills, teach them new techniques and methodologies, and help them build their professional networks. To further develop my skills as a teacher both in laboratory and academic settings, I participated in a comprehensive training program for effective college teaching. This program included various workshops that focused on the enhancement of teaching skills, as well as tools for **effective in-class and online teaching** and provided me with a toolbox for advanced education. Further, I am committed to my continuing development as a mentor and classroom teacher, having **received a Certificate of College Teaching Preparation (CCTP) from the “*Yale* *Poorvu Center of Teaching and Learning*”**. Ultimately, if I can continue to provide the next generation of researchers with the intellectual and practical tools they need to thrive, I will have succeeded as a scientist.

I believe that academia plays an important role in our society, and we, as members of this society, should strive to expose the public to science and foster the next generation of scientists. I, therefore, decided to serve as a **student union representative** at Tel Aviv University during my graduate studies, helping to develop different educational programs along with other activities related to the union. In addition, I had the opportunity to volunteer with the Dr. Baruch Zinger Memorial Fund as a **mentor of underprivileged high school students**. I met with my students on a biweekly basis and helped them with their homework, as well as with the challenges that they faced in school. During our time together, we also discussed science, research, and technology—subjects that I hoped would stimulate their curiosity. This was an amazing experience that rewrote my agenda and helped me to understand how we can make a huge difference in our society.

During my postdoctoral training at Yale University, **I served as a regional manager of ScienceAbroad**, the organization of Israeli scientists abroad. When my family first arrived in New Haven, there were several groups of Israelis, but the interaction between the groups was very limited. I decided to join ScienceAbroad and, together with them, build a strong Israeli community at Yale. I began to organize professional and social events for the Israeli scientific community, which was eager to establish new friendships and create networking opportunities. Our events quickly became attractive to many Israelis who worked at Yale, as well as newly arriving postdocs who used it as a “soft landing”. In early 2020, when COVID-19 hit the USA, our community was strong enough to provide support to members of the community who needed comfort. I thus found this contribution highly satisfying on all levels.

I’ve asked to join the Azrieli Faculty of Medicine of Bar-Ilan University also because I think that academia has a critical role in the development of the periphery. **One of my first requests from the Dean, Prof. Karl Skorecki, was to join the faculty outreach committee**. As a member of the committee, I aim to further promote opportunities for interactions between our scientists and members of the public. In this way, I hope to increase the accessibility of science to a lay audience, foster a greater understanding of science, and provide the public with greater insights into science-related issues. Similarly, I expect my research group to be involved in outreach activities and provide an inclusive environment for people from different backgrounds.

I am excited to start my independent career and I am honored by the confidence conferred upon me by Bar-Ilan University. I hope that by using our interdisciplinary approaches, we will be able to gain important insights into cilia and harness them for the development of different therapeutics. All in all, I am confident that my training and research plans, as well as social and educational aims, align very well with the mission of the Zuckerman STEM Faculty program.