

NIR LIVNE

Jerusalem, Israel

I am a PhD student (Physics), interested in biophysics research, a multidisciplinary field that combines experimental and theoretical aspects borrowed from many different parts of science. During my B.Sc. and M.Sc. I took part in several experimental research projects and focused my formal studies on statistical physics and non-linear dynamics. However, I also studied various other fields such as quantum mechanics, general relativity, economics, neuroscience and more. I try to bridge the gap between my formal physics education and my interest in biology mostly by reading books. After obtaining my PhD I plan on perusing an academic career.

EDUCATION

OCTOBER 2021 – PRESENT

PhD Student (Physics), Prof. Ady Vaknin's Lab, The Hebrew University of Jerusalem

My PhD is about signal integration in *E. coli*'s chemotaxis and is supervised by Prof. Ady Vaknin at the Racah Institute of Physics. My work includes research about signal integration at different levels – both at the scale of individual cells to study the building blocks of *E. coli*'s chemotaxis pathway, and on the scale of population of cells to study the implications of such integration.

- Accepted to PhD with an extended scholarship based on my M.Sc. and B.Sc. (excellence scholarship).
- Received the Milner 70@70 4-year fellowship for outstanding science PhD candidates.

OCTOBER 2019 – SEPTEMBER 2021

M.Sc. in Physics (MAGNA CUM LAUDE), Prof. Ady Vaknin's Lab, The Hebrew University of Jerusalem

My thesis was supervised by Prof. Ady Vaknin. We studied how *E. coli* cells integrate conflicting chemical signals and respond to them. The study consisted of population-level experiments, supplemented with numerical simulations.

- Accepted to M.Sc. with an extended scholarship based on my B.Sc. grades (excellence scholarship).
- Noted in the Dean's list for my academic achievements in 2020, awarded the Dean's prize (top 2.5% of the faculty).
- Graduated M.Sc. in physics - MAGNA CUM LAUDE, ranked 8th in the faculty (out of 127 graduates, final grade: 97/100).

OCTOBER 2016 – SEPTEMBER 2019

B.Sc. in Physics, Amirim Honors Program (MAGNA CUM LAUDE), The Hebrew University of Jerusalem

- Accepted to B.Sc. with scholarship owing to a high psychometric mark (score – 754/800, top 1% in the country).
- Noted in the Dean's list for my academic achievements in 2019.
- Graduated with honors (MAGNA CUM LAUDE, final grade of 95/100) in physics and the "Amirim" multidisciplinary honors program.

ACADEMIC EXPERIENCE

SEPTEMBER 2021 – DECEMBER 2021

Internship on microfluidics, Gabriel Amselem's Lab (active matter), Ecole Polytechnique (France)

I attended a 3-months internship at Gabriel's lab where I studied collective behavior of Chlamydomonas (algae) under photo-tactic stress. The emphasis was on Chlamydomonas as active matter rather than on their biology.

- The internship included work with microfluidics and micropatterning of hydrogels.

SEPTEMBER 2019 – TODAY

Teaching assistant (Physics), The Hebrew University of Jerusalem

TA in a physics laboratory course for undergraduate students. I give lectures, guide students through their experiments and provide feedback on their work and on their reports.

OCTOBER 2018 – JANUARY 2021

University-appointed tutor, The Hebrew University of Jerusalem

University-appointed tutor to new immigrants studying undergraduate physics and math.

SEPTEMBER 2017 – SEPTEMBER 2018

Research assistant, Ady Vaknin's Lab, The Hebrew University of Jerusalem

I was an undergraduate research assistant student in Prof. Ady Vaknin's laboratory (biological physics). I was responsible for the development of a new assay for the study of chemotaxis in E. Coli, performing experiments with live bacteria (microscopy) and analyzing the results.

AWARDS & HONORS

- Award the Milner 70@70 4-year fellowship for outstanding science PhD candidates.
- Accepted to PhD with an extended scholarship based on my M.Sc. and B.Sc. (excellence scholarship, 2021-present).
- Graduated with honors (MAGNA CUM LAUDE), graduated 8th in the faculty (out of 127 graduates, final grade of 97/100) in M.Sc. physics (2021).
- Noted in the Dean's list in 2020. Awarded the Dean's prize (top 2.5% of the faculty).
- Accepted to M.Sc. with an extended scholarship based on my B.Sc. (excellence scholarship, 2019-2021).
- Graduated with honors (MAGNA CUM LAUDE, final grade of 95/100) in B.Sc. physics and the "Amirim" multidisciplinary honors program (2019).
- Noted in the Dean's list in 2019.
- Received the Amirim scholarship for the entire duration of my B.Sc. (2016-2019).
- Accepted to B.Sc. with scholarship owing to a high psychometric mark (score – 754/800, top 1% in the country, 2016).
- Won 14 contests (and over 1,700\$ in prizes) for various ideas, inventions, and tutorials ([link](#)).

CONFRENCES & PUBLICATIONS

- Livne, N., & Vaknin, A. (2022). Collective responses of bacteria to a local source of conflicting effectors. *Scientific Reports*, 12(1), 1-11.
- Short talk (20min) at the Minerva Center for Bio-Hybrid Complex Systems meeting (December 2021, Jerusalem).
- Poster presentation at the Bacterial Locomotion and Signal Transduction - BLAST (January 2021, online).