Shay Ben Moshe 🖀 Tel Aviv, Israel | 🔄 shaybm9@gmail.com | 🗞 shaybm.com | 🛅 shaybenmoshe

Summary _____

Experienced mathematics and cyber-security researcher with a track record in software engineering, R&D team leadership and mentorship. Proficient at interdisciplinary research, spanning fields such as physics, computer science and statistics. Committed to making a significant positive impact.

Education

PhD in Mathematics, Hebrew University of Jerusalem	2019–2023
Advisors: Tomer Schlank & Lior Yanovski. Topic: homotopy theory. Provided guidance to newer students in our research group and organized several seminars and workshops.	
MSc in Mathematics, Hebrew University of Jerusalem	2016–2019
Magna cum laude. Advisor: Tomer Schlank. First year during full-time military service.	
BSc in Mathematics, Hebrew University of Jerusalem	2013–2016
Magna cum laude. Completed during full-time military service.	

Experience _____

Software Engineer, Consultant (part-time)	09/2023-present
Providing consulting services to a stealth startup in the areas of V8 & Node.js internals, algorit research, and general software engineering.	hm and statistical
Software Engineer, Consultant (part-time)	02/2022-08/2022
Hired by the Simons Foundation to consult arXiv.org's cloud migration and system redesign.	
Statistical Researcher, KSM Research & Innovation – Maccabi	01/2021-06/2021
Conducted multiple projects related to COVID-19 for Israel's second-largest HMO.	
Cyber-Security Researcher, Consultant (part-time)	08/2017-04/2021
R&D Team Leader, Israel Defense Forces, Unit 8200	08/2016-07/2017
Led the architecture, development and deployment of a large-scale project combining cyber-security and web expertise, used across the Israeli intelligence community, requiring coordination of stakeholders at all levels. The project is a core part of a wider effort that earned the Israel Defense Prize from the president of Israel.	
Cyber-Security Researcher, Israel Defense Forces, Unit 8200	11/2013-08/2016
Full Stack Developer, Freelancer (part-time)	05/2009-06/2012

Self-taught while in highschool. Worked with many clients such as Similarweb.com.

Honors & Awards

- 2022 **Part of Israel Defense Prize**, for contributions as an R&D team leader (see above)
- 2018 Klein Prize for Excellence in MSc studies, Hebrew University of Jerusalem
- 2017 Dean List for MSc Studies, Hebrew University of Jerusalem
- 2017 Klein Prize for Excellence in MSc studies, Hebrew University of Jerusalem
- 2016 **Personal Excellence Award**, Israel Defense Forces, awarded by sub-unit commander (Colonel)
- 2013 **Dean List for BSc Studies**, Hebrew University of Jerusalem

Publications & Preprints

Chromatic Cardinalities via Redshift with Shachar Carmeli, Tomer Schlank & Lior Yanovski (2023), preprint (arXiv:2310.00275).

Descent and Cyclotomic Redshift for Chromatically Localized Algebraic K-theory with Shachar Carmeli, Tomer Schlank & Lior Yanovski (2023), preprint (arXiv:2309.07123).

Naturality of the ∞ -**Categorical Enriched Yoneda Embedding** (2024), *Journal of Pure and Applied Algebra* Volume 228, Issue 6, 2024 (arXiv:2301.00601).

Higher semiadditive algebraic K-theory and redshift with Tomer Schlank (2024), *Compositio Mathematica* 2024;160(2):237-287 (arXiv:2111.10203).

Unusual Interactions of Pre-and-Post-Selected Particles with Yakir Aharonov & Eliahu Cohen (2014), *EPJ Web of Conferences* 70 00053 (arXiv:1208.3203).

SARS-CoV-2 spike IgG titres up to 137 days following BNT162b2 mRNA COVID-19 vaccination, Israel, February to May 2021 with Tal Patalon et al. (2022), *Euro Surveill.* 2022;27(40):pii=2100703.

Evaluating red blood cell distribution width from community blood tests as a predictor of hospitalization and mortality in adults with SARS-CoV-2: a cohort study with Tamar Banon et al. (2021), *Annals of Medicine*, 53:1, 1410-1418.

Survey of Behaviour Attitudes Towards Preventive Measures Following COVID-19 Vaccination with Daniella Rahamim-Cohen et al. (2021), preprint (medRxiv 2021.04.12.21255304).

A 1 to 1000 SARS-CoV-2 reinfection proportion in members of a large healthcare provider in Israel: a preliminary report with Galit Perez et al. (2021), preprint (medRxiv 2021.03.06.21253051).

Talks & Organization

Organized multiple seminars and workshops listed below. Given over 20 talks in various fields of mathematics. More details and a full list of my talks, including lecture notes, are available on my website.

- 2023 Caesarea Workshop on Topological Cyclic Homology, with Lior Yanovski & Shai Keidar
- 2020 Weil Conjectures Workshop, with Shaul Barkan
- 2020 Algebraic Topology Seminar
- 2019 Chromatic Homotopy Theory Seminar
- 2019 Caesarea Workshop Preparation Day

Volunteer Experience

Volunteered in a number of projects with or related to the Israeli effective altruism community, including:

- Provided weekly managerial support to an EA Infrastructure Fund grantee from our local community.
- Conducted over 15 one-on-one career consultation sessions on skill-building and high-impact roles.
- Aided Unit 8200 in initiating climate change tech projects, culminating in a major hackathon.
- Linked IDF units to health providers, NGOs, and public offices to develop volunteering opportunities.