
Shir Bar

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Education

- 2020 Oct-Present** **PhD Candidate, Prof. Shai Avidan's Lab, School of Electrical Engineering, Tel Aviv University, Prof. Roi Holzman's Lab, School of Zoology, Tel Aviv University, GPA: 97**
Investigating the use of computer vision algorithms to identify rare, fitness-determining behaviors in video data collected during ecological research.
- 2016 – 2018** **M.Sc, Ecology, Evolution & Behavior, *magna cum laude*, Hebrew University of Jerusalem, GPA: 93.8 under the supervision of Prof. Amatzia Genin**
Planned and executed a two-year-long *in-situ* research project investigating the spatial distribution of schooling reef fish. Developed a framework for data analysis in **MATLAB** and **R**.
- 2013 – 2016** **B.Sc, Biology and Cognitive Science, *magna cum laude*, Hebrew University of Jerusalem, GPA: 92.28**
The Cognitive Sciences program is designed to give an elite group of students a wide array of intellectual tools to study human cognition. Participated in advanced computational courses in **MATLAB** and **Python**.

Publications

- 2025** Bar, S., Hirschorn, O. , Holzman, R., and Avidan, S. 2025. **Sifting through the haystack – efficiently finding rare animal behaviors in large-scale datasets**. Proceedings of the Winter Conference on Applications of Computer Vision (WACV), pp. 6290-6299. <https://tinyurl.com/jsp9upw9>
- 2024** Womersley, F.C., Rohner, C.A., Abrantes, K., Afonso, P., Arunrugstichai, S., Bach, S.S., Bar, S., Barash, A., Barnes, P., Barnett, A. and Boldrocchi, G., 2024. **Identifying priority sites for whale shark ship collision management globally**. *Science of The Total Environment*, 934, p.172776. <https://doi.org/10.1016/j.scitotenv.2024.172776>
- 2023** Bar, S., Levy, L., Avidan, S. and Holzman, R., 2023. **Assessing the determinants of larval fish strike rates using computer vision**. *Ecological Informatics*, 77, p.102195. <https://doi.org/10.1016/j.ecoinf.2023.102195>

Posters and Presentations in International Conferences

- 2025 Feb** **Sifting through the haystack – efficiently finding rare animal behaviors in large-scale datasets** – Poster at the Winter Conference on Applications in Computer Vision (WACV, Tuscon, USA).
- 2025 Jan** **Sifting through a haystack - efficiently finding rare behaviors in big datasets** – Talk at the meeting of the Society of Integrative and Comparative Biology (SICB, Atlanta, USA).
- 2024 Jan** **Can I automate this? Managing expectations from AI-based tools** – Talk at the meeting of the Society of Integrative and Comparative Biology (SICB, Seattle, USA).
- 2023 Jan** **Low feeding rates of larval fish persist across a range of environmental conditions** – Talk at the meeting of the Society of Integrative and Comparative Biology (SICB, Austin, TX, USA).
- 2022 Jun** **Analysis of larval fish feeding behavior under naturalistic conditions** – Poster at the CV4Animals workshop at the Conference on Computer Vision and Pattern Recognition (CVPR, New Orleans, LA, USA).

Scholarships, Awards and Grants

- 2023** Research fellowship by the Mediterranean Sea Research Center of Israel (**MERCI**), 10,000 NIS
- 2021 Dec** **IDSI** Access and Usage of Cloud Resources by Graduate Students, 5,000\$ for cloud compute resources
- 2021 Jan** **Microsoft's AI for Earth Grant**, 10,000\$ in compute resources
- 2016 – 2018** Faculty of Science honors scholarship (11,000 NIS) and the MADA program for honor students.

Professional Experience

- 2023 Aug-Present** **Teaching assistant at the Computer Vision for Ecology Workshop, Caltech, Pasadena, California, USA**
Organizing and teaching in the Computer Vision for Ecology workshop led by Prof. Sara Beery (MIT) and Prof. Pietro Perona (Caltech). This is a 3-week project-based course for ecology and conservation practitioners. Delivering lectures, and co-advising a group of researchers on their applied computer vision projects. This is my second year assisting on the course.
- 2022 Oct-Present** **Teaching assistant at the Interuniversity Institute for Marine Sciences in Eilat**
& **2015 – 2018** Teaching intensive one-week courses focusing on introducing students to the science done at the insitute as well as the unique ecology of the Gulf of Aqaba.
- 2021 Oct-Present** **Teaching assistant at the Introduction to R course at Tel Aviv University**
Teaching an intensive one-week course to Zoology graduate students. Empowering graduate students by teaching them coding and advanced data analysis methods in the R environment.
- 2020 Aug-Present** **Volunteer whale shark project manager, Sharks in Israel NGO**
In charge of processing and uploading whale shark sightings in the northern red sea to a global database. This project led to exciting new discoveries regarding the whale shark population in the area.
- 2019 Jul-Oct** **Marine biologist, Love the Oceans NGO, Guinjata Bay, Mozambique**
Led international volunteer programs (up to 7 participants). Was responsible for the delivery of a high-quality experience to program participants, up to par with organization standards. Worked in a high-stress setting, meeting tight schedules, and collaborating efficiently with a diverse multinational team.

Additional Skills, Qualifications, and Personal information

- **Hebrew:** Native, **English:** Fluent, **Spanish:** Conversational.
- Programming skills:
 - o **Python** including ML/DL and data science-oriented libraries (PyTorch, sklearn, pandas, numpy, and some basic TensorFlow)
 - o **R** (or both data wrangling (using tidy family) and advanced statistical analyses (e.g., Generlized Linear Models, and Mixed Effects Models)
 - o Additional related skills: **Git**, **bash**, and some of **Azure's** cloud services (VMs, storage accounts)
- **Military Service (2007-2009)** - Radio communications technician with the Teleprocessing Corpse of the IDF.