

## Eran Bamani

### PhD Candidate in Deep Learning, Computer Vision and Robotics

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## EDUCATION

- Ph.D. Engineering, Tel-Aviv University. Specialization in **Deep Learning, Computer vision** and **Robotics**. Expected graduation: 2021-2025.
  - Fields: Deep Learning, Computer Vision, Human-Robot Interaction and Collaboration, Trajectory estimation. Programming in **Python (PyTorch environment)**.
- Ph.D. Computer Science, Hebrew University. Specialization in **Deep Learning** and **Computer Vision**. Non graduate: 2020-2021.
  - Fields: Medical imaging processing, Deep neural networks, Decompose objects in a medical image. Programming and Software: **Python (Torch environment)**, MATLAB RadiAnt and Slicer.
- B.Sc. & M.Sc. Electronic Engineering, Ariel University. GPA: 92. Specialization in **Image Processing, Signal Processing** and **Machine Learning** for wireless communication. Graduated: October 2019.
  - Thesis: “Indoor radio wave propagation in the presence of scattering objects”.
  - Project topic: “Detection and Recognition Drone with Machine Learning Algorithm”
  - Programming: **MATLAB, Python** and **C++**.
  - Key courses: **Image Processing** and **Computer Vision**, information theory, **advanced Signal Processing**, estimation techniques, equalization techniques

## PROJECTS AND PROFESSIONAL COURSES

- Primrose – Deep Learning Academy. A 10-month course that combines the mathematics of Machine Learning, Deep Learning and practical experience in Python includes the use of Algorithms.
  - Syllabus includes Supervised learning, Unsupervised learning and Deep Learning. Hands-on experience in Python, TensorFlow, PyTorch.
- Systematics Ltd. Solutions at work – Signal Processing with MATAB.
- INTERLLIGENT - RF & Microwave Solutions RF, Microwave and Communications.

## RECENT WORK AND RESEARCH EXPERIENCE

**Tel-Aviv University:** Tel-Aviv, *Teaching Assistant*. 2021-Now.

- 0555312001 - Medical Image Processing 1, *Autumn Semester*.
- 0555452001 - Medical Image Processing 2 (computer vision), *Spring Semester*.

**Primrose - Deep Learning Academy:** Tel Aviv, *Researcher and Lecturer*. 2019-2023.

- Algorithm Development for Image Processing and Computer Vision. Design DNN architecture for Image Processing and Computer Vision tasks.
- Lecturer and Project instructor. Syllabus includes ML / DL / IP / CV.

**Homeland Security Laboratory:** Ariel University, *Research Scientist*. 2017-2019.

- Algorithm Development for Motion Detection and Geometrical-Based and Estimation for

- improving Radio Propagation Analysis.
- Project Instructor for 4<sup>th</sup> year B.Sc. students in their Research Project.
- Teaching Assistant and Lab Instructor: Probability and Statistics for Engineers and Scientists - Mathematics/4320610, Fundamentals of Signal Processing/4331210, Random Signals and Noise/4330110.

**SESP Group:** Petah Tikva, *Algorithm Engineer, part time.* 2016-2017.

Conducting research and development in the field of classical Image Processing and Computer Vision, with a specific focus on the creation of a sophisticated motion detection algorithm.

## OPEN SOURCE CONTRIBUTIONS

- GitHub account: <https://github.com/eranbTAU>

## SOFTWARE ENGINEERING SKILLS

- Machine learning skills: Experienced with using, implementing, and analyzing most textbook machine learning algorithms. Experienced with developing new machine learning techniques.
- APIs, libraries, software frameworks: PyCharm, PyTorch, NVidia CUDA, OpenCV, ROS, Gazebo.
- Programming languages: experienced in C/C++, Java, Python, MATLAB.

## Awards

- Outstanding Research Achievement – ME Graduate Research Award (PhD) , 2023
- Israel Innovation Authority (IIA) for HRI prize, 2022
- Israel Science Foundation (ISF) prize, 2021
- Ministry of Defense (MAFAT) prize, 2017, 2018
- Dean's Fellowship, 2014, 2015

## PAPERS

Bamani, E., Nissinman, E., Meir, I., Koenigsberg, L. and Sintov, A., 2023. Ultra-Range Human Gesture Recognition Using an RGB Camera for Robot Directive. **The paper is under review.**

Bamani, E., Nissinman, E., Meir, I., Koenigsberg, L., Matalon, Y. and Sintov, A., 2023. Recognition and Estimation of Human Finger Pointing with an RGB Camera for Robot Directive. [The Paper is under review.](#)

Bamani, E., Gurevich, A and Sintov, A., 2023. Learning a Data-Efficient Model for a Single Agent in Homogeneous Multi-Agent Systems. **Springer Neural Computing and Applications 2023**, [Paper.](#)

Bamani, E., Kahanowich, N.D., Ben-David, I. and Sintov, A., 2021. Robust Multi-User In-Hand Object Recognition in Human-Robot Collaboration Using a Wearable Force-Myography Device. [IEEE Robotics and Automation Letters, 7\(1\), pp.104-111.](#)

Gerasimov, Y., Balal, N., Bamani, E., Pinhasi, G. and Pinhasi, Y., 2020. Scaled Modeling and Measurement for Studying Radio Wave Propagation in Tunnels. [MDPI Electronics.](#)

## CONFERENCE PAPERS

Bamani, E., Kahanowich, N.D., Ben-David, I. and Sintov, A., 2023. Flip-U-Net for In-Hand Object Recognition Using a Force-Myography Device. **IEEE International Conference on Robotics and Automation and the Israeli Conference on Robotics.** [Oral.](#)

Bamani, E. Gurevich A, Azulay O and Sintov A., 2021 Open-Sourcing Generative Models for Data-driven Robot Simulations. **NeurIPS Data-centric AI 2021.** [Oral.](#)

G. Pinhasi and [E. Bamani](#) (2019) "Study of Human Body Effect on Wireless Indoor Communication", Israeli - Russian Bi-National Workshop 2019, February 18 - 19, 2019, Ein Bokek.