Julius Arolovitch

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Education

CARNEGIE MELLON UNIVERSITY **PITTSBURGH, PA**

B.S. Electrical and Computer Engineering & Robotics | GPA 3.8 *Exp. May 2026*

- **Activities:** President of Carnegie Mellon Hillel, University Leadership Student Advisory Council, Alpha Epsilon Pi, Top 5 at TartanHacks 2024.
- **Coursework:** Planning Techniques for Robotics, Multi-Robot Planning and Coordination, Introduction to ML

Experience

CARNEGIE MELLON ROBOTICS INSTITUTE **PITTSBURGH, PA**

UNDERGRADUATE RESEARCHER, SEARCH-BASED PLANNING LAB *12/2023-PRESENT*

- Advisor: Dr. Maxim Likhachev
- Co-first-authored paper on learning priority functions regularized with soft constraints for bounded sub-optimality without re-openings, leading to significantly reduced re-openings over learning state priorities directly. Built environments, data generation pipelines, trained models, evaluated them for 2D and 3D navigation and the sliding tile puzzle, and assisted in paper writing.
- Researching online heuristic synthesis and refinement for planning under uncertainty.

UNDERGRADUATE RESEARCHER, BIOROBOTICS LAB *08/2022-PRESENT*

- Advisor: Dr. Howie Choset
- Researching multi-agent ergodic search, a spectral-based planning method to allocate agents with variable sensor footprints and kinodynamics for optimal coverage and exploration of diverse information regions.
- Previously on the MedSnake, a tendon-driven surgical snake robot.
- Implemented Linux game controller-based steering, developed hardware and software for encoding-preserving motor stop, and integrated limit switches and tension sensors into hardware.
- Built a multi-threaded PyQT controls GUI with live 3D visualization of the robot in RViz using ROS topics.
- Developed a compliant insertion mode for the snake robot to compliantly insert into bodily cavities in a semi-rigid state while retaining steering control.
- Collected clinical data and tested all above features succesfully in porcine labs.

JOHNSON & JOHNSON **SANTA CLARA, CA**

SYSTEMS INTEGRATION INTERN - MANIPULATORS - OTTAVA *05/2024-10/2024*

- Implemented EtherCAT-based actuator telemetry and automated manufacturing line tests on a dynamometer.
- Developed a USB Pybinded C++ API to interact with Elmo motion controllers, preserving the pre-existing Pythonic interface while increase sampling frequency by 60%.
- Implemented manufacturing-line tests for actuator efficiency and torque ripple using a dynamometer, and evaluated impact of environment and actuator conditions on performance.
- Designed and implemented a robust data pipeline for automated parsing of robotic log data including a Flask RESTful API to process files, PostgreSQL tables to store data, and data trend visualization.

TEL AVIV UNIVERSITY **TEL AVIV, IL**

UNDERGRADUATE RESEARCHER, ROBOTICS LAB *05/2023-09/2023*

- First-authored a paper demonstrating the ability to classify objects with an underactuated robotic hand only using data available from actuators.
- Implemented torque, velocity, and position-based control for performing action sequences and evaluated model performance for each on classification and generalization tasks.

Publications

"Kinesthetic-based In-Hand Object Recognition with an Underactuated Robotic Hand" **J. Arolovitch**, O. Azulay, A. Sintov - ICRA 2024

"Learning Neural Priority Functions for Best-First-Search Using Sufficient Conditions for Bounded Suboptimality without Re-openings" **J. Arolovitch**, I. Mishani, R. Natarajan, M. Likachev - Under Review, ICAPS 2025

Technical Skills

Programming: Python-Advanced, C++-Intermediate, C-Advanced, MATLAB-Intermediate, ROS1-Intermediate
Software: PyPi, Git, Jira, Linux, SolidWorks, AWS, LaTex
Languages: English-Fluent, Russian-Fluent, Dutch-Advanced, French-Advanced