
EDUCATION



Rutgers University

Doctor of Philosophy in Computer Science & Robotics; GPA: 3.97

New Brunswick, NJ

Sept 2019 – May 2026



The Cooper Union

Bachelor of Engineering in Electrical Engineering; GPA: 3.55

New York, NY

Sept 2015 – May 2019



Machon Shlomo: The Heiden Institute

Jewish Law, Ethics, Philosophy, and Leadership

Jerusalem, Israel

Sept 2021 – June 2023

PEER-REVIEWED PUBLICATIONS

Development of a Socially Cognizant Robotic Campus Guide, by Benjamin Greenberg, Daniel Nakhimovich, Richard Magnotti, Hriday Purohit, Sanskar Shah, Aniket Satish Kulkarni, Uriel Gonzalez-Bravo, and Noah R. Carver, in *Companion of the 2024 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2024.

Resolution Complete In-Place Object Retrieval given Known Object Models, by Daniel Nakhimovich, Yinglong Miao, and Kostas E. Bekris, in *IEEE International Conference on Robotics and Automation (ICRA)*, 2023.

Effective and Robust Non-prehensile Manipulation via Persistent Homology Guided Monte-Carlo Tree Search, by Ewerton R. Vieira, Kai Gao, Daniel Nakhimovich, Kostas E. Bekris, and Jingjin Yu, in *International Symposium on Experimental Robotics (ISER)*, 2023.

Persistent Homology for Effective Non-Prehensile Manipulation, by Ewerton R. Vieira, Daniel Nakhimovich, Kai Gao, Rui Wang, Jingjin Yu, and Kostas E. Bekris, in *IEEE International Conference on Robotics and Automation (ICRA)*, 2022.

Uniform Object Rearrangement: From Complete Monotone Primitives to Efficient Non-Monotone Informed Search, by Rui Wang, Kai Gao, Daniel Nakhimovich, Jingjin Yu, and Kostas E. Bekris, in *IEEE International Conference on Robotics and Automation (ICRA)*, 2021.

Robotics as an Enabler of Resiliency to Disasters: Promises and Pitfalls, by Rui Wang, Daniel Nakhimovich, Fred S. Roberts, and Kostas E. Bekris, in *Resilience in the Digital Age - Lecture Notes in Computer Science (LNCS)*, Springer Nature, 2021.

Pushing the Boundaries of Asymptotic Optimality in Integrated Task and Motion Planning, by Rahul Shome, Daniel Nakhimovich, and Kostas E. Bekris, in *Algorithmic Foundations of Robotics XIV*, Springer International Publishing, 2021.

Giga Graph Cities: Their Buckets, Buildings, Waves, and Fragments, by James Abello, Haoyang Zhang, Daniel Nakhimovich, Chengguizi Han, and Mridul Aanjaneya, in *IEEE Computer Graphics and Applications*, IEEE, 2022.

Graph Cities: Their Buildings, Waves, and Fragments, by James Abello, Daniel Nakhimovich, Chengguizi Han, and Mridul Aanjaneya, in *The 4th International Workshop on Big Data Visual Exploration and Analytics with EDBT/ICDT (BigVis)*, 2021.

Graph Waves, by James Abello and Daniel Nakhimovich, in *The 3rd International Workshop on Big Data Visual Exploration and Analytics with EDBT/ICDT (BigVis)*, 2020.

SKILLS

Programming Languages: C/C++, C#, Python, Linux, Java, Rust, MATLAB, Verilog, Bash, PHP, SQL, Ruby

Software Libraries: AWS, OpenCV, PyTorch, ROS, MuJoCo, Ollama, Unity, Docker, Boost, spaCy, MongoDB

Robots and Hardware: Baxter, Yaskawa Motoman, Xilinx FPGAs, 3D Printers

Natural Languages: English (Native), Russian (Conversant), Hebrew (Reading Only)

INDUSTRY EXPERIENCE



Audible

Software Development Engineering Intern

Cambridge, MA

Summer 2025

- Designed an AWS workflow for autogenerating “Accompanying PDFs” for Audio Books
- Implemented the PDF generation workflow using AWS CDK and Java as well as automated unit tests and integration tests achieving 100% code coverage.
- Refined a workflow using Amazon Bedrock via Cline to quickly develop prototype features while encouraging rigorous testing to ensure production level quality.



PulsePoint

TechOps Intern

New York, NY

Summer 2017

- Reduced false positive QPS (queries per second) alerts by 92% by filtering out statistical outliers.
- Implemented automated backups and data verification of ten 100GB databases using Bash scripts and SQL queries executed inside temporary Docker containers.
- Physically diagnosed and reconfigured 2 servers, ensuring continuous uptime of critical application infrastructure.
- Developed 3 new dashboards used for monitoring application reliability.



Conceptheca

Mobile Application Developer

Fair Lawn, NJ

2015 – 2016

- Identified key medical procedures, via collaborating with Doctors, that could use mobile applications to reduce a physician’s workload 85%.
- Designed and implemented 2 applications (Android and iOS) to aid medical professionals to better monitor patients and administer medication.
- Incorporated generative/procedural algorithms in a mobile application to create artistic high resolution images (4k) in less than 1 second.
- Incorporated generative algorithms in a mobile app to create abstract art.

MISCELLANEOUS RESEARCH PROJECTS



PRACSYS

PI: Kostas Bekris

New Brunswick, NJ

Sept 2019 – May 2026

- **Robot Nudging:** A robot nudge is a robot behaviour or inherent design which alters a person’s behaviour without significantly changing the incentive structure. I performed an extensive literature review of the subject in order to discover which ethical parameters are most urgent to consider for robot designers and policy makers.
- **Object Rotation Task Descriptions for Robots in English:** I performed an informal survey, collecting human descriptions in English of household objects being rotated in a simulated environment. The goal is to study how people naturally describe tasks to a robot without using “key words” or “wake phrases”.
- **Put That There:** Human-Robot Interaction studies typically focus on robots understanding humans whereas this project studies how robots can be better understood by humans. I designed and performed experiments to test human ability to interpret instructions given by a real robot.



DIMACS

PI: James Abello

Piscataway, NJ

Summer 2018 – 2020

- **k-connectivity:** k-connectivity is a connectivity measure for graphs. I designed two algorithms for finding approximations of minimum separating sets of a graph in order to perform efficient graph decomposition for data visualization.
- **Graph Peeling:** Graph Peeling is the iterative process of removing vertices from a graph. I explored properties of various graph peeling techniques and designed a new peeling algorithm (wave decomposition) in order to decompose very large graphs efficiently.

TEACHING/MENTOR EXPERIENCE



Lumiere Education

Research Mentor

Online

2023 – 2024



Rutgers University

Mentor to Undergraduate Students in Robotics

New Brunswick, NJ

2020 – 2021

Teaching Assistant for Introduction to Data Structures and Algorithms

Fall 2019

ONE-OFF PROJECTS

- 2019; OpenSesame:** Open source cryptographic co-processor implemented on an FPGA
- 2018; pass2act:** Passive to active sentence transformer built using spaCy's dependency tree parser
- 2017; biboch:** Bitboard checkers implementation with an AI that performs a fast alpha/beta search on the game tree
- 2016; 8-bit processor:** Custom 8-bit instruction set architecture written in verilog
- 2015; 2048 Circuit:** A recreation of the popular mobile game 2048 using various CMOS ICs, buttons, and LEDs

AWARDS/CERTIFICATIONS

- 2023; Best Design Process Award at HRI:** Development of a Socially Cognizant Robotic Campus Guide
- 2023; Certificate in Socially Cognizant Robotics:** Upon completing 2 years in an NSF-funded National Research Traineeship focused on Socially Cognizant Robotics for a Technology Enhanced Society
- 2021; Best Paper Award at BigVis:** Graph Cities: Their Buildings, Waves, and Fragments
- 2018; HackCooper; 1st prize:** skEye Net - Wireless eye tracking / gaze estimation headset that works in realtime
- 2015 — 2019; Half-tuition scholarship:** Merit scholarship from Cooper Union
- 2015 — 2019; Innovators Merit Scholarship:** Merit scholarship from Cooper Union
- 2015; David Lee Memorial Scholarship:** For academic achievement and community service

MISCELLANEOUS

Peer Reviews: 2019 - ...

- **ISER:** International Symposium on Experimental Robotics
- **IROS:** Conference on Intelligent Robots and Systems
- **RSS:** Robotics: Science and Systems Conference
- **CoRL:** Conference on Robot Learning
- **ICRA:** International Conference on Robotics and Automation
- **ICAR:** International Conference on Advanced Robotics
- **RA-L:** IEEE Robotics and Automation Letters
- **BigVis:** Big Data Visual Exploration and Analytics Conference