

Raj Korpan

Doctoral Candidate and Graduate Research Assistant
Department of Computer Science
Graduate Center, City University of New York (CUNY)

Curriculum Vitae

+1 (917) 617-5080
rkorpan@gradcenter.cuny.edu
raj.m.korpan@gmail.com

Education

2015 – Present **Ph.D. Candidate in Computer Science** | Graduate Center | New York, NY
(expected **June 2021**) Advisor: Dr. Susan L. Epstein
Thesis Proposal (2018): “*Learning Situated-Decision Strategies for Collaborative Navigation*”
Survey (2017): “*Metaheuristics and Cognitive Models for Autonomous Robot Navigation*”

2014 – 2015 **Master of Science in Statistics** | Baruch College, CUNY | New York, NY

2007 – 2010 **Bachelor of Science in Economics-Finance** | Bentley University | Waltham, MA
Honors Capstone Thesis: “*The Dynamics of Collapse*”, an analysis of the newspaper industry

Research Interests

Metareasoning and machine learning, human-robot collaboration, explainable artificial intelligence, data science and statistical analysis, autonomous robot navigation, and cognitive modeling

Publications

Epstein, S. L., and **Korpan, R.** (2021). Opportunistic Exploration: Learning to Navigate in Challenging Worlds. (*In Review*).

Epstein, S. L., and **Korpan, R.** (2020). Metareasoning and Path Planning for Autonomous Indoor Navigation. In *Proceedings of the ICAPS 2020 Workshop on Integrated Execution (IntEx) / Goal Reasoning (GR)*.

Korpan, R., and Epstein, S. L. (2020). Deliberate Exploration Supports Navigation in Unfamiliar Worlds. *arXiv preprint arXiv:2007.00798*

Epstein, S. L., and **Korpan, R.** (2019). Planning and Explanations with a Learned Spatial Model. In *Proceedings of the Conference on Spatial Information Theory (COSIT 2019)*.

Aroor, A., Epstein, S. L., and **Korpan, R.** (2018). Online learning for crowd-sensitive path planning. In *Proceedings of the 17th International Conference on Autonomous Agents and Multiagent Systems (AAMAS '18)*. (**Best Robotics Paper Award Nominee**)

Korpan, R., and Epstein, S. L. (2018). Toward Natural Explanations for a Robot’s Navigation Plans. In *Proceedings of HRI 2018 Workshop on Explainable Robotic Systems*.

Korpan, R., Epstein, S. L., Aroor, A., and Dekel, G. (2017). WHY: Natural Explanations from a Robot Navigator. In *Proceedings of AAI 2017 Fall Symposium on Natural Communication for Human-Robot Collaboration*.

Aroor, A., Epstein, S. L., and **Korpan, R.** (2017). MengeROS: A Crowd Simulation Tool for Autonomous Robot Navigation. In *Proceedings of AAI 2017 Fall Symposium on Artificial Intelligence for Human-Robot Interaction*.

Research Experience

Aug. 2015 – Present **Graduate Research Assistant** | Machine Learning and Problem Solving Lab | Hunter College
Develop machine learning and cognitive models for autonomous robot navigation.

Sep. 2014 – May 2015 **Graduate Assistant** | Statistical Consulting Laboratory | Baruch College
Worked with Dr. Shulamith Gross to improve statistical model selection for predictive quality. Tutored students on statistics and graded student work.

Awards and Fellowships

Feb. 2018 **Doctoral Student Research Grant** | **Dr. Lennihan Arts & Sciences Grant** | Graduate Center

Oct. 2017 **Ernesto Malave Merit Scholarship** | CUNY University Student Senate

Aug. 2015 – May 2020 **Two-year Science Fellowship** | **Five-year Tuition Fellowship** | Graduate Center

May 2015 **Award for Excellence in Statistics** | Baruch College

Teaching Experience

Aug. 2017 – Present **Adjunct Instructor** | Hunter College, CUNY | *Undergraduate Students (Instructor of Record)*
Advanced Applications: Capstone for Majors, Introduction to Computer Science, Discrete Structures Recitation, Computers and Money
Teaching Assistant | *Undergraduate, Master's and Doctoral Students*
Machine Learning, Artificial Intelligence

Service and Leadership

University Service

May 2019 – Dec. 2019 **Student Representative** | Graduate Center Presidential Search Committee
Jul. 2018 – Jun. 2020 **Co-Chair** | Doctoral and Graduate Students' Council
Jul. 2017 – Jun. 2018 **Officer for Funding** | Doctoral and Graduate Students' Council | *Chair of the Grants Committee*
Jul. 2018 – Present **Student Representative** | Faculty/Student Disciplinary Panel | Student Academic Appeals
Aug. 2016 – Present **Student Representative** | Graduate Council | *Curriculum and Degrees, Student Technology Fee*

Departmental Service

Sep. 2017 – Present **Student Representative** | Executive Committee | Computer Science Department
Aug. 2016 – Present **Treasurer** | Computer Science Students' Association
Jul. 2016 – Present **Computer Science Rep.** | Doctoral and Graduate Students' Council | *Constitution & Bylaws*

Other Experience

Mar. 2019, Mar. 2017 **Volunteer Judge** | New York City Science and Engineering Fair
Jun. 2017 **Participant** | Data on the Mind Workshop at Univ. of California, Berkeley | Summer School on Cognitive Robotics at MIT
Jun 2016 – Jul. 2016 **Student Volunteer** | IJCAI | ICML

Non-Academic Employment

Sept. 2013 – Aug. 2015 **Technology and Financial Consultant** | New York, NY
Developed end-to-end software test plans to identify technical, functional and usability issues. Analyzed complex financial data to build a cash flow and income model.
Aug. 2012 – Aug. 2013 **Technology Associate** | JPMorgan Chase | New York, NY
Oversaw technology-related communications to investment bankers, performed data analyses to determine project viability, and managed large and small projects.
Jul. 2010 – Aug. 2012 **Operations Analyst** | JPMorgan Chase | Chicago, IL
Implemented a governance process for project requests, created and presented project status reports, performed cost-benefit evaluation on project requests.

Professional Memberships

Sep. 2017 – Present **Association for the Advancement of Artificial Intelligence (AAAI)**
Apr. 2016 – Present **Cognitive Science Society**
Nov. 2015 – Present **IEEE**
Sep. 2014 – Present **American Statistical Association** | **Association for Computing Machinery**

Skills

Programming and Data Analysis: C++, Python, R, MATLAB, LaTeX, Hadoop, Spark
Machine Learning: k -nearest neighbor, cluster analysis, decision trees, naïve Bayes, SVM, neural networks, PCA
Artificial Intelligence: Reinforcement learning, genetic and swarm algorithms, planning, search
Statistics: ANOVA, regression, variable selection, experimental design, probability theory, multivariate analysis
Computer and Project Management Tools: MS Office, Google Drive, GitHub, SharePoint, Slack