MICHAL LEWKOWICZ

+1 (516) 263-2028 ⋄ michal.lewkowicz@yale.edu ⋄ mlewkowicz.github.io ⋄ MLewkowicz ⋄ Google Scholar

EDUCATION

Yale University ***August 2019 – December 2024***

B.S. in Computer Science - *with Distinction*, & **B.A. in Applied Mathematics** - *In Progress* | *3.85 GPA*

Relevant Coursework Machine Learning | Intelligent Robotics | Building Interactive Machines
Randomized Algorithms | Discrete Mathematics | Vector Calculus & Linear Algebra
Automata Theory | Advanced Probability | Computational Intelligence
Data Structures & Algorithms | Systems Programming & Computer Organization

EXPERIENCES

Yale Social Robotics Lab | *Researcher (Advisor: Brian Scassellati)* ***June 2019 – Present***

- Co-led project which investigates strategy estimation for multiple agents in competitive and collaborative settings (behavioral cloning, goal prediction, model predictive control, and novel algorithms for reasoning about opponent behavior) **[C6], [S2]**
- Built a real-time object interception algorithm on a Stretch RE1 robot for sorting objects with human preferences and worked on a semi-supervised clustering algorithm for identifying indeterminate sub-categorizations of recyclables **[C4]**
- Utilized ROS, OpenCV, and Speech-to-Text to build the software infrastructure of an in-home interruptions training social robot for adults with ASD on the Jibo robot platform. Ran user study in ∼15 homes and conducted data analysis **[C3]**
- Implemented bayesian knowledge tracing for tracking the knowledge of an intelligent robotic tutoring system (built on a UR5e robot arm) that learns and then teaches the task of outlining chords on a xylophone **[C2]**

Yale Interactive Machines Group | *Researcher (Advisor: Marynel Vázquez)* ***January 2022 – Present***

- Leading the development of a Unity-ROS simulator for multi-agent reinforcement learning and social navigation **[C6], [S3]**
- Enabling fine-grained control of simulated pedestrians and agents, and sensor emulation for sim-to-real transfer **[S3]**

KAIST Interaction Lab (KIXLAB) | *Researcher (Advisor: Juho Kim)* ***June 2023 – December 2023***

- Built the pipeline for a multi-modal video editing system to enable the expression of edits with natural language and sketching (integrated CLIP, activity recognition, dense captioning, and LLMs to reason about video context) **[C5], [W1]**

Yale LILY Lab | **Meta AI** | *Researcher (Advisor: Dragomir Radev)* ***January 2021 – June 2021***

- Investigated fusion of semantic representation graphs (AMR) for improving faithfulness of abstractive text summarization in collaboration with Facebook's Language and Translation Technologies (LATTE) group

Interacting Robotic Systems Lab at Stony Brook | *Researcher (Advisor: Nilanjan Chakraborty)* ***June 2018 – June 2019***

- Used various graph-based techniques to design a novel leader selection algorithm for distributed robotic swarm control and worked on optimizing path planning algorithms at the Stony Brook Interacting Robotic Systems Lab (C++, MATLAB) **[C1]**

Concepts for Adaptive Learning (CfAL) | *Technology Lead / Mentor* ***June 2020 – September 2020***

- Provided computer and technology training to students and adults around the New Haven area (full-stack development)
- Ran community outreach programs such as a virtual computer lab, programming workshops, and personalized tutoring

PUBLICATIONS

Journal Publications

[J1] Sarah Sebo, Ling Liang Dong, Nicholas Chang, **Michal Lewkowicz**, Michael Schutzman, Brian Scassellati (2020). "The Influence of Robot Verbal Support on Human Team Members: Encouraging Outgroup Contributions and Suppressing Ingroup Supportive Behavior." *Frontiers in Psychology: Performance Science* ***Citations:***17

Conference Publications

[C6] Debasmita Ghose*, **Michal Lewkowicz***, David Dong, Andy Cheng, Tran Doan, Emma Adams, Marynel Vázquez, and Brian Scassellati (2024)."Planning with Critical Decision Points: Robots that Influence Humans to Infer Their Strategy." In *Proceedings of the IEEE International Conference on Robot & Human Interactive Communication (RO-MAN '24)*

[C5] Bekzat Tilekbay*, Saelyne Yang*, **Michal Lewkowicz**, Alex Suryapranata, Juho Kim (2024). "ExpressEdit: Video Editing with Natural Language and Sketching." In *Proceedings of the 2024 ACM Conference on Intelligent User Interfaces (ACM IUI, 20% acceptance rate)* ***Citations:***1

[C4] Debasmita Ghose, **Michal Lewkowicz**, Kaleb Gezahegn, Julian Lee, Timothy Adamson, Marynel Vázquez, and Brian Scassellati (2022). "Tailoring Visual Object Representations to Human Requirements: A Case Study with a Recycling Robot." In *Proceedings of the Conference on Robot Learning (CoRL, 39% acceptance rate)* ***Citations:***1

[C3] Ramnauth, Rebecca*, Emmanuel Adéníran*, Timothy Adamson*, **Michal Lewkowicz**, Rohit Giridharan, Caroline Reiner, and Brian Scassellati (2022). "A Social Robot for Improving Interruptions Tolerance and Employability in Adults with ASD." In *Proceedings of the ACM/IEEE International Conference on Human-Robot Interaction (HRI, Best Paper Award Honorable Mention)* ***Citations:***8

[C2] Timothy Adamson, Debasmita Ghose, Shannon C Yasuda, Lucas Jehu Silva Shepard, **Michal Lewkowicz**, Joyce Duan, Brian Scassellati (2021). "Why We Should Build Robots that Both Teach and Learn." In *Proceedings of the ACM/IEEE International Conference on Human-Robot Interaction (HRI)* ***Citations:***7

[C1] **Michal Lewkowicz**, Rohil Agarwal, Nilanjan Chakraborty (2019). "Distributed Algorithm for Selecting Leaders for Supervisory Robotic Swarm Control." In *Proceedings of the IEEE International Symposium on Multi-Robot and Multi-Agent Systems (MRS, Oral Presenter, 30% acceptance rate)* ***Citations:***8

Peer-Reviewed Workshop Papers

[W1] Bekzat Tilekbay*, Saelyne Yang*, **Michal Lewkowicz**, Alex Suryapranata, Juho Kim (2024). "ExpressEdit: Video Editing with Natural Language and Sketching." In *HAI-GEN Workshop at IUI 2024: 5th Workshop on Human-AI Co-Creation with Generative Models*

In Submission

[S3] **Michal Lewkowicz**, Debasmita Ghose, Nathan Tsoi, Allan Wang, Dražen Brščić, Brian Scassellati, Marynel Vázquez (2025), "Multi-Agent SEAN: A Social Simulation Environment for Data-Driven Learning in Autonomous Navigation," *Submitting to Robotics: Science and Systems (RSS) , Los Angeles, USA*

[S2] Debasmita Ghose, Oz Gitelson, **Michal Lewkowicz**, Jake Brawer, Alessandro Roncone, Marynel Vázquez, Brian Scassellati (2025), "Planning Ahead: Robots that Reveal Humans' Goals Using Critical Decision Points During Collaboration," *Submitting to Robotics: Science and Systems (RSS) , Los Angeles, USA*

[S1] Jirachaya "Fern" Limprayoon, Debasmita Ghose, **Michal Lewkowicz**, Natnaree "Proud" Ua-Arak, Chayan Sarkar, Joan Monin, Brian Scassellati (2025), "A Social Robot for Deep Breathing and Storytelling to Support Adults with Dementia and Their Care Partners," *Submitting to International ACM SIGACCESS Conference on Computers and Accessibility, (ASSETS)*

AWARDS

- **Best Paper Award Honorable Mention** *(Human Robot Interaction Conference 2022)*: Our paper *"A Social Robot for Improving Interruptions Tolerance and Employability in Adults with ASD"* was nominated for the Best Paper Award in the Systems Track **[C3]**.
- **Student Inclusion Award Recipient** *(Conference on Robot Learning 2022)*: Awarded one of ten travel grants for researchers demonstrating scholarly achievement and research potential to attend and present my work at the Conference on Robot Learning in Auckland, New Zealand **[C4]**.
- **YES Scholar**: Awarded to 100 highly qualified STEM applicants from 2300 Yale admits in the class of 2023 which guaranteed research funding for the first summer at Yale.
- **Simons Summer Research Fellowship:** Matched with Professor Nilanjan Chakraborty at Stony Brook University to perform research on multi-agent systems. The research led to first author publication and oral presentation at *MRS 2019* **[C1]**.

SKILLS

Programming Languages	Python | C/C++| C# | JavaScript | Angular | Bash | SQL
Frameworks/Libraries/Technologies	ROS / ROS2 | PyTorch | Unity | OpenCV | Git | CUDA | Linux | Docker | AWS
Languages	English (Native) | Polish (Fluent)