ROMAN MINEYEV

Portfolio mineyev2.github.io/roman_mineyev/ | LinkedIn https://www.linkedin.com/in/roman-mineyev/ | GitHub https://github.com/mineyev2 | Email rmineyev3@gatech.edu | Tel. 217-372-9357 | Atlanta, GA

EDUCATION

Georgia Institute of Technology Aug. 2024 - May 2026
Master of Science in Robotics **GPA: 4.00/4.00**

- Core Areas in Mechanical Engineering (ME), Artificial Intelligence (AI), and Human-to-Robot Interaction (HRI).
- Coursework: Deep Reinforcement Learning (DRL), Human-Robot Interaction (HRI), Dynamics of Mechanical Systems.

University of Illinois at Urbana-Champaign, IL Aug. 2019 - May 2024
Bachelor of Science in Mathematics & Computer Science **GPA: 3.67/4.00**

- Coursework: Machine Learning (ML), Advanced Computational Topics in Robotics, Computational Photography (CV)

RESEARCH EXPERIENCE

Graduate Research Assistant – Robotics Sep. 2024 - Present
Georgia Institute of Technology Atlanta, GA

- Developing a trajectory optimization-based task and motion planning algorithm under signal temporal logic (STL) and Mixed-Integer Programming (MIP) for bipedal locomotion of humanoid robots.
- Implemented a Model Predictive Control (MPC) trajectory follower for the Digit humanoid robot in the MuJoCo simulator, achieving robust trajectory tracking.
- Transitioning simulation-based designs to physical hardware.
- Manuscript in preparation for submission to IEEE Robotics & Automation Letters.

Undergraduate Research Assistant - Robotics Jan. 2023 - May 2024
University of Illinois at Urbana-Champaign Urbana, IL

- Designed a perception-based method for door handle detection and localization in a dual-arm robotic system, demonstrating 95% localization accuracy in experiments. Published in Ubiquitous Robots 2023.
- Contributed to an autonomous chess-playing robotic system by developing a turn-end detection module, using fingertip trajectory analysis to identify opponent move completion with 91.94% success across five full chess games. Manuscript accepted by Humanoids 2023.
- Improved grasping strategies for a 3D object reconstruction algorithm in challenging scenarios. Contribution presented at Ubiquitous Robots 2022.
- Created a framework for a novel mobile robotic system to detect and simultaneously grab objects from a shelf with sampling-based planning on its three arms. Manuscript submitted to the IEEE Robotics & Automation Magazine.
- Led the development of a computer vision-based object-tracking pipeline to detect and track fast-moving footballs with a 3-DOF gimbal, mounted on a moving quadruped. Trained a YOLO model on synthetic football images and achieved 95% tracking accuracy for footballs thrown at 25–35 mph over 5–15 meters.

Undergraduate Research Assistant - Bioinformatics May 2023 - Sep. 2023
University of Illinois at Urbana-Champaign Urbana, IL

- Developed a website tool to visualize and predict cancer metastasis using a multi-objective optimization algorithm called Mach2.
- Published in RECOMB 2025.
- Website link: https://elkebir-group.github.io/mach2-viz/#/

Undergraduate Research Assistant - Machine Learning Jun. 2019 - Aug. 2019
University of Illinois at Urbana-Champaign Urbana, IL

- Object tracking on a Raspberry Pi prototype to track people in a building.
- Developed TCP servers for real-time communication between Raspberry Pis.
- Programmed servos to center object of interest within the camera frame.

PROFESSIONAL EXPERIENCE

Backend Engineer | *IntelliJ, Java Spring Boot, MySQL* May 2022 - Aug. 2022
Zoom San Jose, CA

- Built and optimized a chatbot for Zoom Events, leveraging the tf-idf algorithm to improve functionality.
- Delivered a final presentation to a 100-member Zoom Events team, highlighting its features and benefits.

Frontend Engineer | *AWS, Monitoring tools, PHP, Apache* May 2021 - Aug. 2021

Zoom Remote

- Designed a file-sharing service on AWS to enhance employee productivity and streamline workflows.

PROJECTS

Game of Life Website Development | *Github Pages, React, HTML, CSS, Javascript* May 2023 - Jun. 2023

- Website for demonstrating cellular automata: mathematical models on a grid that evolve through time.
- Website link: https://mineyev2.github.io/game_of_life/

Raspberry Pi Quadcopter | *Python, C++* Jun. 2020 - Jun. 2022

- Built a quadrotor and remote controller which uses a Raspberry Pi and Arduino.
- Programmed a flight controller from scratch, using the MARG sensor fusion algorithm on a 9-DOF IMU sensor.

iPhone Application Development | *Unity, C#, Git, App Store* May 2021 - Aug. 2021

- Developed a Whack-a-Mole based mobile game using the Unity game engine.
- 200+ App Store downloads in a year.

PUBLICATIONS

- M. S. Roddur, V. Ramavarapu, A. Bunkum, A. Huebner, **R. Mineyev**, N. McGranahan, S. Zaccaria, and M. El-Kebir, *Characterizing the Solution Space of Migration Histories of Metastatic Cancers with MACH2*. Accepted by Proceedings of the International Conference on Research in Computational Molecular Biology, December 2024 (RECOMB 2025).
- K. Shin, **R. Mineyev**, J. Kim *Autonomous Door-Opening with a Dual-Arm Robot*. Accepted by Ubiquitous Robots (UR 2023).
- Sankalp Yamsani, Kevin Gim, Tyler Smithline, Richard Qiu, Chaerim Moon, Sungmin Kang, **Roman Mineyev**, Kyungseo Park, Yoon-Koo Kang, Seulbi An, SungHwan Ahn, Joohyung Kim. *MOMO: Mobile Object Manipulation Operator*. Demo Session, IEEE/RSJ International Conference on Intelligent Robots and Systems, October 2023 (IROS 2023).
- K. Shin*, S. Yamsani*, **R. Mineyev**, H. Chen, N. Gandi, Y. J. Lee, J. Kim. *Exploring the Capabilities of a General-Purpose Robotic Arm in Chess Gameplay*. Accepted by IEEE-RAS International Conference on Humanoid Robots, September 2023 (Humanoids 2023).

LEADERSHIP AND ACTIVITIES

Chapter President Urbana, IL

Chi Sigma Tau Fraternity Aug. 2022 - Aug. 2023

- Attended bi-weekly United Greek Council presidents' meetings to strengthen ties among minority Greek organizations, fostering collaboration and addressing shared challenges.
- Recognized as "President of the Month" by the Council for outstanding leadership and contributions.
- Led weekly internal chapter meetings to provide business updates and set strategic goals for the fraternity.
- Attended workshops for leadership development to improve organizational and interpersonal skills.
- Strengthened communication skills through 1-on-1 meetings with each fraternity member to address mental health, personal concerns, and general feedback.

SKILLS

Programming Languages: Python, C++, Java, Matlab, Simulink
Libraries and Frameworks: PyTorch, NumPy, Matplotlib, ROS, ROS2, MuJoCo, CUDA
Languages: English, Russian, Japanese