

NAYOUNG (SARAH) HA

nh285@cornell.edu (607-319-9340)

EDUCATION

Cornell University

Master of Engineering, Computer Science

August 2024 - May 2025

Cornell University

Bachelor of Arts, Computer Science

August 2021- May 2024

PUBLICATIONS

Nayoung Ha*, Ruolin Ye*, Ziang Liu, Shubhangi Sinha, Tapomayukh Bhattacharjee “REPeat: A Real2Sim2Real Approach for Pre-acquisition of Soft Food Items in Robot-assisted Feeding.” *IROS 2024* [[arXiv](#)]

RESEARCH AND PROFESSIONAL EXPERIENCE

PoRTaL Lab

Research Assistant

June 2024 - May 2025

Supervisor: Prof. Sanjiban Choudhury

- Developed efficient ways of multi-view representation learning on Diffusion Policy
- Working on closing the domain gap between robot data and human data through guiding the policy with learning the object flow and determining robot feasible actions from mixed feasible and infeasible human video data.

EmPRISE Lab

Research Assistant

February 2023 - May 2025

Supervisor: Prof. Tapomayukh Bhattacharjee

- Used Material Points Method simulation and assistive robots to resolve feeding task of soft body objects.
- Tested the Unity development of RCareWorld, a human-centric simulation world for physical and social robotic caregiving
- Implemented soft body simulation of RCareWorld on Unity with Taichi lang in order to accelerate computation of the Material Point Method Algorithm by making it differentiable

Cornell University Autonomous Underwater Vehicle

Software Engineer

October 2021 - May 2024

Supervisor: Prof. Hunter Adams

- Finalist in Robonation’s 2024 International Robosub competition, placing 3rd out of 40 international teams
- Programmed vision modules using lab color space, filtering process, and image matching algorithms such as Scale-Invariant Feature Transform, Speed Up Robust Feature, and Oriented FAST and Rotated BRIEF technique.
- Created a Unity simulation for underwater pool environment enabling various mission tasks

Big Care AI Lab

Data Analyst Intern

April 2021 - January 2022

Supervisor: Prof. Min Song

- Developed a food recommendation system considering ingredient preference and individual health factors for health care app company advised under Professor Min Song from Yonsei University
- Presented patent for food recommendation system regarding user preference using graph algorithms and matrix factorizationl
- Engaged in data analysis of nutrition factors and food consumption pattern of individuals using Pandas DataFrame and Scipy

TEACHING EXPERIENCE AND MENTORING EXPERIENCE

CS 4820 Introduction to Algorithms Head Teaching Assistant / Teaching Assistant

Cornell University

August 2023 - December 2024

- Held office hours, answered Ed discussion questions, and graded assignments and exams.
- Helped students for topics including Gale-Shapley Algorithm, Greedy Algorithm, Dynamic Programming, Divide and Conquer, Network Flows, NP-completeness, Approximation Algorithms, Randomized Algorithms, Turing Machine, and Computability.

SoNIC (Software Defined Network Interface) Program Teaching Assistant

Cornell University

July 2023

- Teaching assistant for SoNIC Workshop, a crash course in robotics with nearly 30 other U.S. students, hosted by the Cornell Ann S. Bowers College of Computing and Information Science and funded by NSF.
- Assisted in teaching students ROS, RViz, detection by ArUco markers and path searching algorithm such as A star.

CS 2110 Object-Oriented Programming and Data Structures Consultant

Cornell University

January 2023 - May 2023

- Held office hours, assisted discussion sections, answered Ed discussion questions, and graded assignments and exams.
- Taught topics including Java syntax, Abstraction, Encapsulation, Testing, Interfaces, Inheritance, Dynamic dispatch, Exceptions, Bags, Generics Reading, Linked Structures, Ordered Collections, Efficiency, Recursion, Trees, Sorting, Hashing, GUIs, Concurrency, Synchronization, BFS, DFS, Dijkstra's Algorithm, Priority queues and heaps, and Iterators

Code Red Robotics Outreach Event

Ithaca High School

February 2023

- Hosted an outreach event at Ithaca High School to raise interest in Robotics to our local community

GRANTS AND AWARDS

Bowers CIS Undergraduate Research Experience

Cornell University

June 2024 - August 2024

- Received \$6000.00 for summer undergraduate research experience

Summer Experience Grant

Cornell University

May 2023 - August 2023

- Received \$5370.00 for summer undergraduate research experience

Dean's List

Cornell University

- Presented to Arts and Science students who have exemplary academic records

SKILLS

Languages: Java, OCaml, Python, JavaScript, C#, HTML, CSS, TypeScript, C++, C

Skills: Unity, Pandas DataFrame, Docker, OpenCV, Git, Linux, LaTeX, NetworkX, WebSocket++, Node.js, Taichi Lang, ROS, RViz