

# Xinyue Zhu

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## Education

**Columbia University, School of Engineering & Applied Science**

New York, NY

*Bachelor of Science in Computer Science, GPA: 3.90/4.00*

*Aug. 2023 – May 2025*

**Bard Early College at Simon's Rock**

Great Barrington, MA

*Undergraduate Studies, GPA: 4.00/4.00*

*Aug. 2021 – May 2023*

## Publications

- [1] **X. Zhu\***, B. Huang\*, and Y. Li. “Touch in the Wild: Learning Fine-Grained Manipulation with a Portable Visuo-Tactile Gripper.” Best Demo Award at RSS 2025 Workshop on Robot Hardware-Aware Intelligence, *Conference on Neural Information Processing Systems (NeurIPS)*, 2025.
- [2] R. Wang\*, **X. Zhu\***, A. Chen, J. Xu, L. Winterbottom, D. M. Nilsen, J. Stein, and M. Ciocarlie. “ReactEMG: Zero-Shot, Low-Latency Intent Detection via sEMG.” *Under Review*, 2025.
- [3] J. Xu\*, Y. Jia\*, D. Yang\*, P. Meng, **X. Zhu**, Z. Guo, S. Song, and M. Ciocarlie. “Tactile-based object retrieval from granular media.” *Autonomous Robots*, 2025.
- [4] **X. Zhu**, D. Kimmel. “Disentangling Interpretable Cognitive Variables That Support Human Generalization via DisRNN.” Workshop on Interpreting Cognition in Deep Learning Models, *Under Review*, 2025.
- [5] J. Xu\*, R. Wang\*, S. Shang\*, A. Chen, L. Winterbottom, T. L. Hsu, W. Chen, K. Ahmed, P. L. La Rotta, **X. Zhu**, D. M. Nilsen, J. Stein, and M. Ciocarlie. “ChatEMG: Synthetic Data Generation to Control a Robotic Hand Orthosis for Stroke.” *IEEE Robotics and Automation Letters (RAL)*, 2025.
- [6] Y. Hu, Z. Zhang, **X. Zhu**, R. Liu, P. Wyder, and H. Lipson. “Knolling Bot: Learning Robotic Object Arrangement from Tidy Demonstrations.” *Conference on Neural Information Processing Systems (NeurIPS)*, 2025.
- [7] Z. Ni\*, X. Deng\*, C. Tai\*, **X. Zhu**, Q. Xie, W. Huang, X. Wu, and L. Zeng. “Grid: Scene-Graph-Based Instruction-Driven Robotic Task Planning.” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2024.
- [8] A. Callahan\*, E. R. Hasson\*, K. Minden\*, M. A. Ollis\*, and **X. Zhu\***. “Uniquely completable and critical subsets of the integer addition table.” *Australasian Journal of Combinatorics*, 2024.

## Research Experience

**Robotic Manipulation and Mobility (ROAM) Lab, Columbia University**

New York, NY

*Undergraduate Research Assistant, Advisor: Prof. Yunzhu Li*

*Sep. 2024 – Current*

- Visuo-Tactile Learning for Fine-Grained Manipulation
- Scalable Dexterous Hand Manipulation

**Robotic Manipulation and Mobility (ROAM) Lab, Columbia University**

New York, NY

*Undergraduate Research Assistant, Advisor: Prof. Matei Ciocarlie*

*Sep. 2023 – May 2025*

- Controlling Robot Orthosis via sEMG for Stroke Rehabilitation
- Tactile-based Object Retrieval from Underground

**Creative Machines Lab, Columbia University**

New York, NY

*Undergraduate Research Assistant, Advisor: Prof. Hod Lipson*

*Nov. 2023 – Jan. 2023*

- Learning “Tidiness” with Robots through Demonstrations

**Intelligent Manufacturing and Machine Vision Research Lab**

Shenzhen, China

*Undergraduate Intern, Advisor: Prof. Long Zeng*

*May 2023 – Aug. 2023*

- Robotic Task Planning Using Scene Graphs and Large Language Models

**Bard Early College at Simon's Rock, Department of Mathematics**

Great Barrington, MA

*Undergraduate Research Assistant, Advisor: Prof. Kaethe Minden*

*Aug. 2021 – May 2023*

- Mathematical Properties and Applications of Infinite Latin Squares

Leadership Experience

<b>Engineering Student Council (ESC), Columbia University</b>	New York, NY
<i>Professional Development and Alumni Relations Representative</i>	<i>Sep. 2023 – May 2024</i>
<ul style="list-style-type: none"><li>Built partnerships with the Columbia Engineering Young Alumni Association to launch networking events connecting students with industry professionals.</li></ul>	
<b>ACComPLISHED Health Education Program, Columbia University</b>	New York, NY
<i>Peer Teaching Leader</i>	<i>May 2024 – Aug. 2024</i>
<ul style="list-style-type: none"><li>Designed and delivered workshops on health, AI, and robotics for 100+ high school and undergraduate students.</li><li>Organized and supported a summer program that engaged 400+ students in STEM learning.</li></ul>	
<b>Student Government, Bard Early College at Simon’s Rock</b>	Great Barrington, MA
<i>Class Representative (Freshman &amp; Sophomore)</i>	<i>Aug. 2021 – May 2023</i>
<ul style="list-style-type: none"><li>Led 10+ Women in STEM initiatives, including hackathons, mentorship circles, and career panels, increasing student participation in STEM outreach.</li><li>Streamlined the student internship transportation program and collaborated with local officials to resolve community-wide transit delays.</li></ul>	

Service

<b>Guided Training and Rehabilitation after Stroke, Columbia University</b>	New York, NY
<i>Clinical Assistant and Volunteer to Dr.Syeda Naqvi</i>	<i>Jan. 2024 – Dec. 2024</i>
<ul style="list-style-type: none"><li>Assisted 10 post-stroke patients with in-home rehabilitation exercises to improve recovery and quality of life.</li></ul>	
<b>Manhattan Physical Medicine and Rehabilitation</b>	New York, NY
<i>Clinical Assistant to Dr. Loren Fishman</i>	<i>May 2024 – Sep. 2024</i>
<ul style="list-style-type: none"><li>Shadowed 30+ hours in rehabilitation care, assisting with patient treatment and EMG needle practice.</li><li>Developed a patient-education website on osteoporosis and documented clinical case notes for physician use.</li></ul>	

Teaching Experience

<b>Bard Early College at Simon’s Rock</b>	Great Barrington, MA
<i>Teaching Assitant</i>	
<ul style="list-style-type: none"><li>Think Tank: General Engineering Tutor</li></ul>	<b>Spring 2023</b>
<ul style="list-style-type: none"><li>CMPT 100: Foundations of Computer Science</li></ul>	<i>Prof. Zachary While</i> <b>Spring 2023</b>
<ul style="list-style-type: none"><li>MATH 101: Geometric Thinking and Problem Solving</li></ul>	<i>Prof. Kaethe Minden</i> <b>Fall 2022</b>
<ul style="list-style-type: none"><li>MATH 110: Algebraic Structures and Techniques</li></ul>	<i>Prof. Kaethe Minden</i> <b>Spring 2022</b>