# 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 Perception, Interaction, and Learning Lab (RoboPIL), 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

**Engineering Student Council (ESC), Columbia University** New York, NY
*Professional Development and Alumni Relations Representative* *Sep. 2023 – May 2024*

- Built partnerships with the Columbia Engineering Young Alumni Association to launch networking events connecting students with industry professionals.

**ACComPLISHED Health Education Program, Columbia University** New York, NY
*Peer Teaching Leader* *May 2024 – Aug. 2024*

- Designed and delivered workshops on health, AI, and robotics for 100+ high school and undergraduate students.
- Organized and supported a summer program that engaged 400+ students in STEM learning.

**Student Government, Bard Early College at Simon's Rock** Great Barrington, MA
*Class Representative (Freshman & Sophomore)* *Aug. 2021 – May 2023*

- Led 10+ Women in STEM initiatives, including hackathons, mentorship circles, and career panels, increasing student participation in STEM outreach.
- Streamlined the student internship transportation program and collaborated with local officials to resolve community-wide transit delays.

## Service

**Guided Training and Rehabilitation after Stroke, Columbia University** New York, NY
*Clinical Assistant and Volunteer to Dr.Syeda Naqvi* *Jan. 2024 – Dec. 2024*

- Assisted 10 post-stroke patients with in-home rehabilitation exercises to improve recovery and quality of life.

**Manhattan Physical Medicine and Rehabilitation** New York, NY
*Clinical Assistant to Dr. Loren Fishman* *May 2024 – Sep. 2024*

- Shadowed 30+ hours in rehabilitation care, assisting with patient treatment and EMG needle practice.
- Developed a patient-education website on osteoporosis and documented clinical case notes for physician use.

## Teaching Experience

**Bard Early College at Simon's Rock** Great Barrington, MA
*Teaching Assitant*

- Think Tank: General Engineering Tutor **Spring 2023**
- CMPT 100: Foundations of Computer Science *Prof. Zachary While* **Spring 2023**
- MATH 101: Geometric Thinking and Problem Solving *Prof. Kaethe Minden* **Fall 2022**
- MATH 110: Algebraic Structures and Techniques *Prof. Kaethe Minden* **Spring 2022**