**Motivation**
- Education enables opportunity & reduces poverty
- Many students lack access to quality education
- Teachers are under-resourced and over burdened

**Research Vision**
- Reinforcement learning (RL) involves learning from data to make high-outcome decisions
- Use RL to augment and amplify teaching ecosystem
- Doing so yields novel RL advances

**1. RL for Grading:** Grading Interactive Coding HW with RL

**2. RL for Tutoring:** Create personalized tutoring companion for students

**3. RL for Science of Teaching:**
What is the optimal tutoring strategy?

**4. Novel RL Advances**
To Support data efficient RL policy for education, developed new end-to-end robust RL pipeline.

**Acknowledgement**
- "I think I have some ideas, but I won't spoil it. Just let me know if you need a hint."
- "'In... I suggest thinking about the concept of a unit cube and the volume of a unit cube."
- "You can fit 3 chocolates along the height, 5 chocolates along the width, and 6 chocolates along the length of the box."

**RL policy is helpful for initially low performers** in a randomized control trial (RCT) study.

**Nie, Brunskill, Piech NeurIPS 2021; Liu et al. NeurIPS 2022; Liu et al. SIGCSE 2024**