

# EdTech and UIST: Designing Next-Generation Learning Tools

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## Abstract

This workshop brings together the UIST and EdTech communities to explore the design of next-generation learning technologies. By integrating expertise in interactive systems, learning sciences, and artificial intelligence and analytics applied to educational data, we aim to advance user interfaces that support scalable, personalized, and evidence-based education. Through lightning talks, paper presentations, and collaborative sessions, participants will share insights, identify emerging challenges, and spark interdisciplinary collaborations. Workshop outcomes include a shared knowledge base, design strategies grounded in learning theory, and new research directions at the intersection of HCI and education.

## CCS Concepts

• Applied computing → Computer-assisted instruction.

## Keywords

Educational Technologies, Interface Design, Learning Environments

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## 1 Introduction

Educational technologies (EdTech) are playing an increasingly important role in how people learn, teach, and collaborate, across

classrooms, homes and workspaces - especially with the rise of generative AI. Recent research in UIST has introduced novel interface and interaction designs that enhance educational experiences and outcomes [7, 9, 10]. Because of these advances and the nature of the field, developing meaningful and scalable EdTech remains a complex and evolving challenge. It requires a solid understanding of the theoretical, methodological, and practical foundations of education. Many intelligent tutoring systems (ITSs), for example, have succeeded in disciplines such as mathematics [1, 2] and computer science [8] by combining student-centered design, cognitive theory [1], and evidence-based practices [4], all supported by data-driven technologies [3, 5, 6]. With more flexible and complex student-AI interactions occurring in classrooms and beyond, these systems also require innovative and intuitive interaction designs that effectively engage learners, while also supporting learner cognitive processes, and the people who form their educational support teams.

This workshop brings EdTech researchers from learning sciences communities together to forge new interdisciplinary pathways for designing and evaluating educational technologies. The goal is to collaboratively explore practical methods, theories, data infrastructures, and tools to design effective educational technologies. Participants will build a shared knowledge base, exchange insights, and identify best practices, fostering new opportunities for interdisciplinary collaboration. Our workshop includes three key goals: (1) Engage UIST researchers in educational research challenges, encouraging the use of novel interactive technologies (e.g., intelligent interfaces, AR/VR) in education research. (2) Introduce learning science theories and methods (e.g., student modeling, learning analytics, educational data mining), and explore the various roles that people and AI can play in complex learning scenarios, to the UIST community to support more data-driven, theoretically-grounded interface and interaction designs. (3) Bridge the learning science communities and the HCI community to inspire new collaborations and cross-community research agendas.

## 2 Workshop Plans and Activities

This in-person full-day workshop will bring together approximately 30 participants (including organizers). Participants will present

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their research findings / demos, engage with experienced mentors from EdTech and UIST, and collaboratively explore challenges and opportunities in interdisciplinary educational technology research.

## 2.1 Pre-Workshop Activities

*Recruitment.* We will invite researchers and practitioners interested in designing educational technology and interfaces (e.g., UIST, CHI, DIS), learning analytics, artificial intelligence, and learning sciences (e.g., EDM, AIED, LAK, ISLS) via mailing lists, social media (e.g., Twitter, LinkedIn), and relevant conferences. A workshop website will provide essential details including the call for participation, objectives, workshop agenda, submission instructions, key dates, and organizer contacts.

*Call for Participation.* Participants are invited to submit position papers that address 1) ongoing or prior research on system designs and stakeholders in educational contexts, or 2) challenges, questions, and ideas for the design of interdisciplinary educational technology. Papers will undergo peer review for quality and relevance. Selected submissions will be featured in brief presentations during the workshop.

*Community Building.* Two weeks prior to the event, participants will join an online community (e.g., Google Group) to introduce themselves and share initial insights. On the day of the workshop, participants will deliver short lightning talks to highlight key ideas of their papers. Organizers will use participant interests to form interdisciplinary discussion groups via an online survey, facilitating deeper connections and collaborative idea development. Shared resources, including slides, Miro boards, and Google Drive folders, will support ongoing collaboration.

## 2.2 Workshop Planned Activities

*2.2.1 Introduction and Lightning Talks (9:00 - 10:00).* The workshop will begin with 2-minute lightning talks, where participants introduce their background, current work, and cross-disciplinary interests. Each will also share one potential contribution (e.g., dataset, tool, or design method) to help establish common ground and identify complementary expertise across EdTech and UIST.

*2.2.2 Keynote (10:00 - 10:45):* We will invite a keynote speaker to share insights related to the workshop theme. Potential invitees include: Juho Kim and Alice Oh.

*2.2.3 Paper Presentation (10:45 - 12:00, 2:00 - 2:45).* Following the lightning talks, 10 selected workshop submissions will be invited to present in a short spotlight format in two sections. Each presenter will have 8 minutes to share their work, followed by 4 minutes of feedback from the audience. The presentations will highlight projects at the intersection of education, AI, and interaction design. A quick feedback survey will be given after each talk, encouraging attendees to identify interdisciplinary connections and complementary methods that could improve the work, such as: potential collaborators, methods for improving data quality, expanded interface affordances or stakeholder considerations, or broader evaluation strategies. This activity aims to promote cross-pollination between communities and drive stronger and more holistic research.

*2.2.4 Thematic Breakout Discussions: “Where Worlds Collide” (2:45 - 3:45).* In the afternoon, we will organize a breakout session where participants will form small groups to discuss challenges and opportunities that at the intersection of educational technology and user interface research. Each group will focus on one of several curated themes, including: (1) Controllability in educational interfaces - How we can enable educators or students to guide or refine AI behavior; (2) Scalable feedback mechanisms - How interface design can support timely and personalized feedback in large-scale learning environments; (3) Data and privacy - Balance the need for detailed educational data with transparency, consent, and trust; and (4) Evaluation paradigms - Understanding how HCI and EdTech communities approach evaluation differently, and what we can learn from each other. Each breakout group will be facilitated and will record key ideas to share in a whole-group reconvening session.

*2.2.5 Speed Collaboration Rounds (4:00-4:45).* To foster cross-community connections, we will host a speed collaboration activity. Participants from different disciplinary backgrounds will be paired for short, timed conversations. Each person will introduce their work and describe a specific problem they are trying to solve, followed by a short discussion of how their partner might contribute. For example, a participant working on educational data mining may offer a dataset and seek help designing an interface to visualize model output, while a UIST researcher may describe a novel interaction technique and ask for feedback on how it could be deployed in a classroom context. After each 10-minute round, the participants rotate to meet someone new. This activity is intended to surface opportunities for mutual exchange and spark new collaborations.

*2.2.6 Closing Reflections (4:45-5:00).* We will conclude the workshop with a brief reflection session, where the organizers will summarize insights from the day and outline the next steps to continue the conversation beyond the workshop.

## 2.3 Post-Workshop Plans

*Workshop Report.* We will create a concise report capturing key ideas, insights, and themes from presentations and group discussions. This report will include participant contributions and will be openly accessible online, providing a valuable resource for both attendees and the broader research community.

*Interdisciplinary Knowledge Base and Toolkit.* A primary outcome will be a collaboratively-developed online knowledge base synthesizing learning theories, and educational data-driven methods from learning science community. By analyzing participants’ position papers and interactive workshop discussions, we will extract actionable insights and best practices. This resource will be published on the workshop website.

*Building a Lasting Community.* We will maintain the communication channel (through Slack and Google Groups) to allow collaborative opportunities beyond the event itself. In addition, participants will collaboratively review the workshop report, sustaining engagement and supporting lasting professional connections. We will also organize follow-up workshops at other HCI and EdTech conferences to build the community across disciplines.

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