* Have you previously taken any online computer science courses?

- ◯ Yes
- ◯ No

* Age Group

- ◯ 18 - 20
- ◯ 21 - 25
- ◯ 26 - 30
- ◯ 31- 35
- ◯ > 35
- ◯ Prefer not to say

* Gender

- ◯ Male
- ◯ Female
- ◯ Non-binary
- ◯ Prefer not to say

* Which of the following best describes your current status as a university student?

- ◯ Freshman/1st year undergraduate

- ◯ Sophomore/2nd year undergraduate
- ◯ Junior/3rd year undergraduate
- ◯ Senior/4th year undergraduate
- ◯ Master's student
- ◯ Doctoral (PhD) student
- ◯ Other

* How many online computer science courses have you taken before?

Please reflect on a recent online computer science course you completed or are currently taking, and answer the following questions in the survey:

* What was the level of the course?

- ◯ Introductory
- ◯ Intermediate
- ◯ Advanced

* Is it a programming course or non programming course?

- ◯ Programming
- ◯ Non Programming Course

* What is the course topic?

* How did you primarily participate in the online course?

- ◯ Synchronous
- ◯ Asynchronous

* What type of media/components is frequently used during instruction time in this online course?

- ☐ Video Conferencing/Pre-recorded Lecture videos
- ☐ Discussion Forum
- ☐ Slides/Lecture Notes
- ☐ Chat Room
- ☐ Interactive Activity
- ☐ Shared document
- ☐ Other

* What type of media do you frequently use for discussion after class in this online course?

- ☐ Email
- ☐ Discussion Forum(Piazza, Canvas Discussion, etc.)
- ☐ Messaging App(Whatsapp, Slack, Teams, Discord, etc.)
- ☐ Video Conferencing(Zoom, Teams, etc)
- ☐ Other

Community of Inquiry (CoI) is a framework to understand and enhance the online learning experience. This framework proposed that effective education arises from the teaching presence, cognitive presence, and social presence, which together create a supportive, engaging, and challenging learning environment. Please reflect on the most recent online computer science course you completed or the course you are currently taking, and rate your agreement with the following statements:

* The course supports the following factors of **Cognitive Presence** (The extent to which learners are able to construct and confirm meaning through sustained reflection and discourse)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I was challenged to think critically about course content and could feel a sense of puzzlement that stimulate further inquiry.	◯	◯	◯	◯	◯
Communicating with the instructor and other students helped me to explore and understand course topics in more depth.	◯	◯	◯	◯	◯
The course activities encouraged me to connect different ideas to form a coherent understanding.	◯	◯	◯	◯	◯
I was able to apply the knowledge gained from the course to new ideas, practical problems or real-life situations.	◯	◯	◯	◯	◯

Could you please elaborate on why you gave these ratings for the cognitive presence in the course? (any experiences or aspects of the course that significantly influenced your perception) (Optional)

* Compared to in-person computer science courses, do you believe the course is adequately

challenging to stimulate further inquiry?

- ○ About the same as in-person courses
- ○ Worse than in-person courses
- ○ Better than in-person courses

* When does this stimulated further inquiry typically occur?

- ☐ Exploring the lecturing/slides
- ☐ Participating in class activities
- ☐ Working on individual assignments
- ☐ Working on group assignments/projects
- ☐ Discussing with classmates
- ☐ Studying independently on external resources
- ☐ Preparing and taking exam
- ☐ Other

* Compared to in-person computer science courses, when this further inquiry occurs, do you believe the course provides sufficient resources for further exploration of the inquiry?

- ○ About the same as in-person courses
- ○ Worse than in-person courses
- ○ Better than in-person courses

* What do you usually do for further exploration of the inquiry?

- ☐ Review course materials
- ☐ Discussing with classmates

- [ ] Attending Instructor/TA's Office Hours
- [ ] Seek additional external online resources
- [ ] Watch additional external tutorial videos
- [ ] Other

* Compared to in-person computer science courses, do you believe the course sufficiently encouraged you to connect different ideas to form a coherent understanding ?

- ○ About the same as in-person courses
- ○ Worse than in-person courses
- ○ Better than in-person courses

* Which activities do you find most effective in helping you connect different ideas to form a coherent understanding?

- [ ] Exploring the lecturing/slides
- [ ] Participating in class activities
- [ ] Working on individual assignments
- [ ] Working on group assignments/projects
- [ ] Discussing with classmates
- [ ] Studying independently on external resources
- [ ] Preparing and taking exam
- [ ] Other

* Compared to in-person computer science courses, do you believe you were able to apply the knowledge gained from the course to new ideas, practical problems, or real-life situations?

- ◯ About the same as in-person courses
- ◯ Worse than in-person courses
- ◯ Better than in-person courses

* The course supports the following factors of **Social Presence** (The ability of participants in the Community of Inquiry to project themselves socially and emotionally, as well as to perceive other participants as real people)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I felt that the online course and co-learners effectively supported emotional expression, with contributive factors like humor and self-disclosure, enhancing my ability and confidence to express feelings related to the educational experience.	◯	◯	◯	◯	◯
I felt that the online course and co-learners promoted open communication, with factors like mutual awareness and recognition, contributing to a more engaging and collaborative learning environment.	◯	◯	◯	◯	◯
I felt that the online course and co-learners effectively fostered group cohesion, creating a sense of belonging and collaboration that builds participation and empathy.	◯	◯	◯	◯	◯

Could you please elaborate on why you gave these ratings for the social presence in the course? (any experiences or aspects of the course that significantly influenced your perception) (Optional)

* Compared to in-person computer science courses, do you believe the course sufficiently supports the emotional expression?

- ◯ About the same as in-person courses
- ◯ Worse than in-person courses
- ◯ Better than in-person courses

* Compared to in-person computer science courses, do you believe the course sufficiently supports the open communication?

- ◯ About the same as in-person courses
- ◯ Worse than in-person courses
- ◯ Better than in-person courses

* Compared to in-person computer science courses, do you believe the course sufficiently promotes a sense of group cohesion?

- ◯ About the same as in-person courses
- ◯ Worse than in-person courses
- ◯ Better than in-person courses

* The course supports the following factors of **Teaching Presence** (The selection, organization, and primary presentation of course content as well as the design and development of learning activities and assessment)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The instructor clearly defines and initiates discussion for course topics and concepts	◯	◯	◯	◯	◯
The instructor successfully facilitated the development of understanding and encouraged the sharing of personal insights	◯	◯	◯	◯	◯

The instructor provided timely feedback on my assignments and questions.	○	○	○	○	○
The instructor provided direct instruction and was actively involved in facilitating the course discussions	○	○	○	○	○

Could you please elaborate on why you gave these ratings for the teaching presence in the course? (any experiences or aspects of the course that significantly influenced your perception) (Optional)

* Compared to in-person computer science courses, do you believe the course instructor sufficiently supports the initiates discussion for course topics and concepts?

- ○ About the same as in-person courses
- ○ Worse than in-person courses
- ○ Better than in-person courses

* Compared to in-person computer science courses, do you believe the course instructor sufficiently supports the facilitated development of understanding and encourages the sharing of personal insights?

- ○ About the same as in-person courses
- ○ Worse than in-person courses
- ○ Better than in-person courses

* Compared to in-person computer science courses, do you believe the course instructor sufficiently provided timely feedback on my assignments and questions?

- ○ About the same as in-person courses

- ◯ Worse than in-person courses
- ◯ Better than in-person courses

* Compared to in-person computer science courses, do you believe the course instructor provided direct instruction and was actively involved in facilitating the course discussions

- ◯ About the same as in-person courses
- ◯ Worse than in-person courses
- ◯ Better than in-person courses

The following section will gather student perceptions on using generative AI in online courses. Generative AI can be used for generating course materials that tailor learning environments to individual student needs, interests, preferences, and learning speeds. Also, AI co-learners can serve as interactive agents that discuss course content, provide real-time personalized feedback, facilitate group interactions, and support interactions by recognizing emotions, mimicking human non-verbal cues, and tailoring their persona, tone, and interaction styles. Furthermore, additional AI instructors or teaching assistants can assist students in navigating course content, offering real-time and personalized instructional support and feedback.

Please reflect on the most recent online computer science course you completed or the course you are currently taking, assuming that you will work with AI-generated course materials, additional AI co-learners, and additional AI instructors/TAs, then rate your agreement with the following statements:

* Do you have any previous experience working with generative AI?

- ◯ Extensive experience
- ◯ Some experience
- ◯ No experience

* To what extent do you agree or disagree with the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am interested in using AI-generated materials in my online computer science courses.	◯	◯	◯	◯	◯
I am interested in working with additional AI co-learners in online computer science courses.	◯	◯	◯	◯	◯
I am interested in working with additional AI instructors and TAs in online computer science courses.	◯	◯	◯	◯	◯

* Could you please explain why you are interested or not interested in having AI-generated course materials, AI co-learners, AI instructors/TAs in online computer science courses?

* In the online computer science course, assuming instructors are using generative AI to develop course materials that tailor learning environments to individual student needs, interests, preferences, and learning speeds, and you may work with AI co-learners that can discuss course content, provide real-time feedback, and facilitate group interactions, how do you think the course supports the following factors in Cognitive Presence (The extent to which learners are able to construct and confirm meaning through sustained reflection and discourse)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I can be challenged to think critically about AI generated course materials and could feel a sense of puzzlement that stimulate further inquiry.	◯	◯	◯	◯	◯
Communicating with the AI co-learners can help me to explore and understand course topics in more depth.	◯	◯	◯	◯	◯

The AI-generated course materials that align with my interests can encourage me to connect different ideas to form a coherent understanding.	○	○	○	○	○
With the support from generative AI, I can better apply the knowledge gained from the course to new ideas, practical problems or real-life situations.	○	○	○	○	○

* When considering having **AI-generated course material** in online computer science courses, which of the following aspects do you find most important to improve your learning experience?

- [ ] Accuracy of the content
- [ ] Clarity of the explanations
- [ ] Adaptability to various learning styles and paces
- [ ] Incorporation of engaging elements tailored to personal interests
- [ ] Features that enhance interactivity
- [ ] Inclusion of practical examples
- [ ] Other

* In the online computer science course, assuming you are working with additional AI co-learners that can help you navigate course content, collaborate in-class activity, provide real-time feedback, and discuss the course contents, how do you think the course supports the following factors of Social Presence (The ability of participants in the Community of Inquiry to project themselves socially and emotionally, as well as to perceive other participants as real people)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

I felt that the online course having AI co-learners effectively support emotional expression, with contributive factors like humor and self-disclosure, enhancing my ability and confidence to express feelings related to the educational experience.	○	○	○	○	○
I felt that the online course having AI co-learners promotes open communication, with factors like mutual awareness and recognition, contributing to a more engaging and collaborative learning environment.	○	○	○	○	○
I felt that the online course having AI co-learners effectively fostered group cohesion, creating a sense of belonging and collaboration that builds participation and empathy.	○	○	○	○	○

* When considering working with **AI co-learners** in online computer science courses, which of the following aspects do you find most important to improve your learning experience?

- [ ] Clarity and relevance of conversation content
- [ ] Naturalness and real-time responsiveness in interactions
- [ ] Ability to recognize and respond to expressed emotions
- [ ] Ability to mimic human non-verbal cues (facial expressions, gestures, body movements)
- [ ] Customizability of the persona, tone, and interaction styles
- [ ] Ability to assess student current knowledge level and provide personalized feedback
- [ ] Other

* In the online computer science course, assuming you are working with additional AI instructors/TAs,

how do you think the course supports the following factors of Teaching Presence (The selection, organization, and primary presentation of course content as well as the design and development of learning activities and assessment)

	Strongly Disagree	Disagree	Natural	Agree	Strongly Agree
The additional AI instructors and TAs can clearly define and initiate better discussions for course topics and concepts	◯	◯	◯	◯	◯
The additional AI instructors and TAs can better facilitate the development of understanding and encourage the sharing of personal insights	◯	◯	◯	◯	◯
The additional AI instructors and TAs can provide timely feedback on my assignments and questions	◯	◯	◯	◯	◯
The additional AI instructors and TAs can provide direct instruction and can actively involve in facilitating the course discussions.	◯	◯	◯	◯	◯

* When considering working with additional **AI instructors/TAs** in online computer science courses, which of the following aspects do you find most important?

- ☐ Clarity and relevance of conversation content
- ☐ Naturalness and real-time responsiveness in providing instruction
- ☐ Ability to recognize and respond to expressed emotions
- ☐ Ability to mimic human non-verbal cues (facial expressions, gestures, body movements)
- ☐ Customizability of the persona, tone, and teaching styles
- ☐ Ability to assess student current knowledge level and provide personalized feedback
- ☐ Ability to support course navigation according to individual learning styles and paces
- ☐ Other

* Please select "Strongly Agree" for this statement to show that you are paying attention.

- ○ Disagree
- ○ Strongly agree
- ○ Neutral
- ○ Agree
- ○ Strongly disagree

* In the previous questions, which elements of the Community of Inquiry (CoI) framework were mentioned? (Select all that apply)

- ☐ Social Presence
- ☐ Teaching Presence
- ☐ Technological Presence
- ☐ Cognitive Presence

Thank you for participating in our survey! Your insights are invaluable to our research on online learning with generative AI in computer science education. Your contribution will help us better understand how to enhance the online learning experience. We appreciate your time and thoughtful responses!