

# AI-ALOE

**Summary:** The National AI Institute for Adult Learning & Online Education is working with the Technical College System of Georgia to bring next-generation AI-programs to adult learners. We are putting the most powerful educational tools available into the hands of our students and faculty. Together we refine and improve on these tools every day.

AI-ALOE began to roll out its tutors in TCSG classes in the spring of 2022, and the list of participating schools and courses has grown with each passing semester. AI-ALOE tutor deployment ranges from general education classes to environmental science to medical terminology, with more new courses and programs of study expected in coming semesters.

AI-ALOE equips participating TCSG classes with one of its advanced tutors to assist in the learning process. After the semester, AI-ALOE gathers feedback and data from students and faculty to improve its programs and learn more about how artificial intelligence operates. Steps are taken to ensure confidentiality of all student information. Only designated researchers have access to the data. TCSG does not share data of students under the age of 18. A short description of each tutor and its deployment at TCSG is below.

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**Jill Watson:** Jill Watson is an AI-assisted chatbot designed to assist students and teachers by answering commonly asked questions in the classroom. Students ask Jill Watson questions, and Jill Watson pulls from teacher-approved sources of data (such as syllabi and textbooks) to quickly answer queries without going beyond the parameters set up by the professor. Jill Watson was developed by a team at Georgia Tech consisting of Ashok Goel, Sandeep Kakar, and Qiaosi Wang.

**iTELL:** Intelligent Texts for Enhanced Language Learning (iTELL) converts text (such as textbooks, worksheets, articles, etc.) into interactive, intelligent text within a web-app. iTELL provides opportunities for students to write summaries about text and videos to demonstrate their understanding productively. The summaries are scored automatically by large language models (LLMs) specifically trained to generate scores which provide feedback to students. iTELL also uses AI to generate short questions for sections of the text and videos to assess comprehension. iTELL will also include an AI assistant guide on the side that can assist students with questions they have about the text and videos or help them make connections between the text and their experiences. iTELL was developed by a team at Vanderbilt University consisting of Scott Crossley, Joon Suh Choi, Langdon Holmes, Wesley Morris, and Qiushi Yan.

**SMART:** The Student Mental Model Analyzer for Research and Training (or SMART) is a web-based system designed to provide formative assessment and feedback to support students' concept learning. SMART doesn't just point out specific errors, it analyzes broader trends in student behavior and builds an expert-knowledge structure as it assists student in writing and reading comprehension. SMART was developed by a team at Georgia State University consisting of Min Kyu Kim, Jinho Kim, and Yoojin Bae.

**Apprentice:** The Apprentice tutor focuses on improving mathematical learning. The tutor observes students' online work and uses knowledge tracing to identify the gaps in individuals' understanding. Apprentice uses this information to provide students with personalized feedback to fill in the gaps. The Apprentice tutor is remarkably flexible and totally customizable by the professor running the course. Apprentice was developed by a team at Georgia Tech consisting of Chris MacLellan, Adit Gupta, Glen Smith, Jenn Reddig, and Momin Siddiqui.

**VERA:** The Virtual Ecological Research Assistant (or VERA) is designed to encourage independent student investigation into ecology. It provides the student with an open virtual laboratory and allows them to run wild with their theories and hypotheses. Students can design their own ecological models in VERA with variables of their own choice. VERA was developed by a team at Georgia Tech consisting of Sungeun An, Ashok Goel, Jennifer Hammock, and Spencer Rugaber.

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## Tutor Deployment:

	Spring 2022	Summer 2022	Fall 2022	Spring 2023	Summer 2023	Fall 2023	Spring 2024
Chattahoochee Technical College		Apprentice Tutor	Apprentice Tutor	Apprentice Tutor	Apprentice Tutor		Apprentice Tutor
Columbus Technical College	SMART Tutor	SMART Tutor	SMART Tutor	SMART Tutor	SMART Tutor	SMART Tutor	SMART Tutor, Jill Watson
North Georgia Technical College			VERA		VERA	VERA	VERA
Wiregrass Technical College						Jill Watson	Jill Watson, iTELL



### Links:

Home page: [Home – National AI Institute for Adult Learning and Online Education \(aialoe.org\)](https://aialoe.org)

Videos on various technologies: [Technologies – National AI Institute for Adult Learning and Online Education \(aialoe.org\)](https://aialoe.org)

Posters on various projects: [Projects – National AI Institute for Adult Learning and Online Education \(aialoe.org\)](https://aialoe.org)

The AI-ALOE Vision: [AI-ALOE: AI for Reskilling, Upskilling, and Workforce Development](https://aialoe.org)