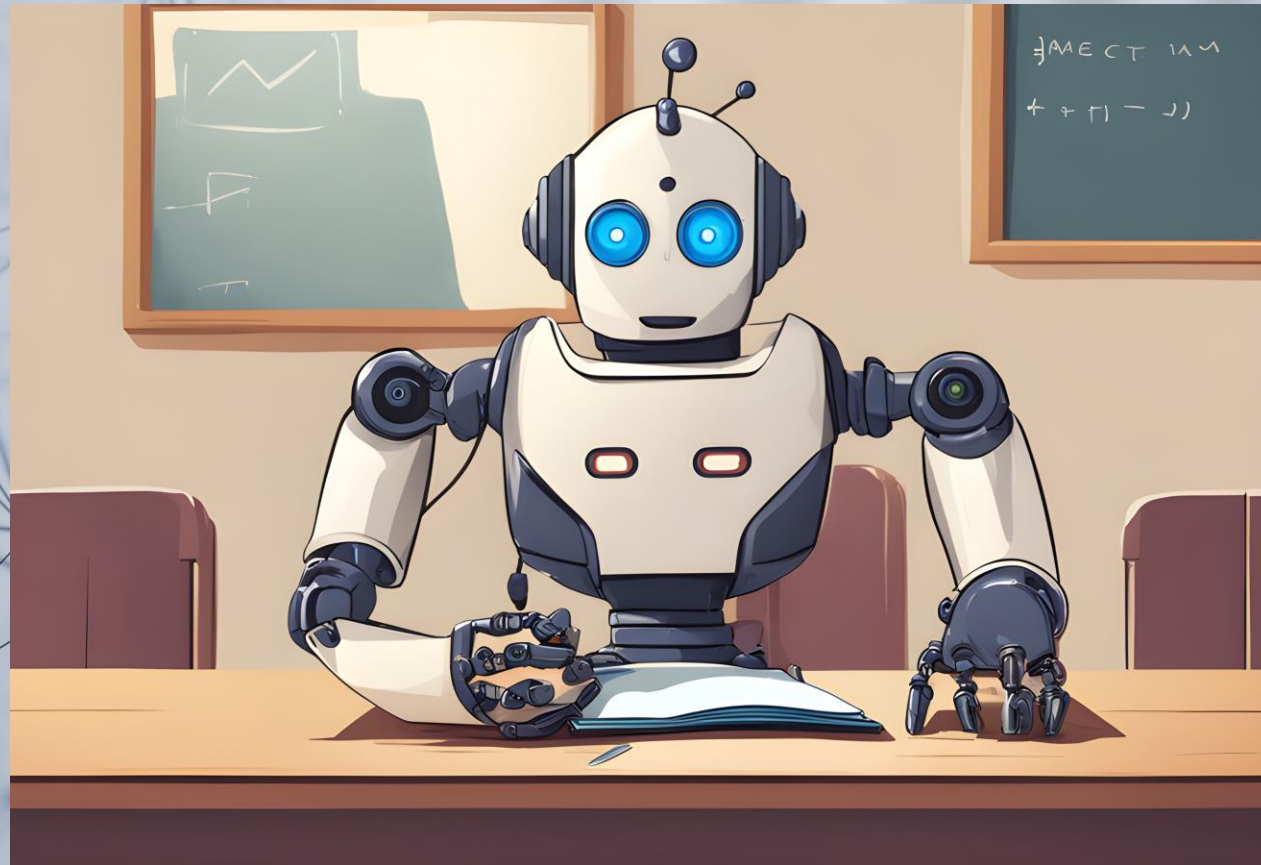Nick Griebel

CIS129

05/15/2024

Final Project

Development of a long-term artificial intelligence teacher intended for kindergarten through higher education
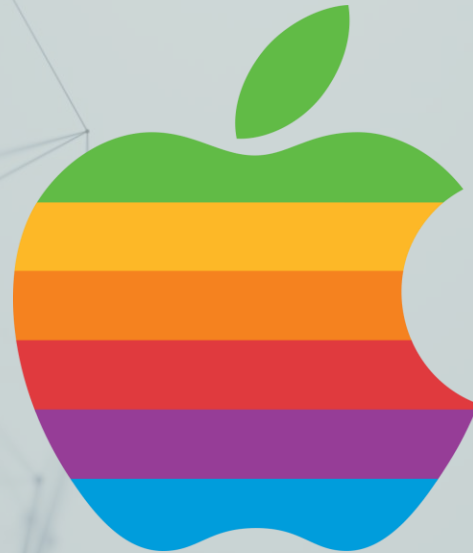
Overview

In today's world, individual students often lack much-needed personal attention in school.

My idea proposes an AI teacher that follows the student through their school lives from kindergarten to college, constantly learning more about its student, and personalizing its teaching style to obtain maximum benefit for the student.

The original idea was proposed by Steve Wozniak of Apple Computers.

There are significant advantages to be gained by this form of teaching that would benefit the students, however there are also disadvantages that could potentially cause problems for students.

Acceptance of AI Teachers

Willingness to accept AI in the classroom is very slow-growing, but not non-existent.

- According to a study conducted by E Park [1], AI tutors were greeted with an excellent success rate. These tutors were seen as very helpful, and students found its' positive advice very uplifting. It was found that so called "Social Robots" had a positive effect on students.

Current advancements in AI are taking place very quickly, and acceptance of wide-spread AI use is high. How would AI teachers advance education?

- Technology is expanding every day. Education started with teachers teaching students with books and chalk boards. In present times, computers are utilized to perform most of the teaching tasks. With this mindset of growing with technology, AI teachers could be the next breakthrough that the world needs.

Implementation

There would be a significant amount of details surrounding the implementation of this sort of project, but here are the main implementation details

- Early learning stages:
  - Who have we been assigned? Learn their name and a little bit about them. This kind of learning, like most of the code in this project, would need to be implemented using some form of neural network system.
  - How does the student respond to certain learning styles? Maybe mixing styles works the best?
  - Besides being just a teacher, the teacher must learn how to be friends with the student. Learn everything about them, and use it to build a stronger bond with the student.
  - Start the student off with a basic teaching style, and gradually modify the style until a perfect match has been obtained.

- Mid-stage learning:
  - Determine how the schooling effort is progressing, and self-modify existing routines to match changes.
  - Does the students' current progress match what goals the student set for themself? If not, perhaps there is a mismatched teaching style. Reassess current learning protocols and determine new matches if necessary.
  - Continue with teaching curriculums that have been matched precisely to the student, and consistently make sure positive progress is being obtained.

Implementation continued

- Late learning stages

  - How has this process affected the student through their life? Has there been a significant benefit to the teaching styles used by the AI teacher? Continue to analyze learning styles to deliver extraordinary teaching to the student through their college schooling.

  - Perform overviews of teacher performance, and log specific details that would be useful for other versions of the software. Continuous advancement is very important in this kind of software.

- Student interface

  - There are several different kinds of user interface available for this project:
    - Computer development
    - Mobile device/Tablet development
    - Smartboard interface development

Current research

- AI is currently being used widely by various teachers and in various classroom settings. According to an article published by Today.com, teachers are learning how to use AI to advance their teaching abilities every day. Artificial intelligence certainly does have the ability to enhance the learning environment currently, and it is only a matter of time before   artificial intelligence is a key structure in the school system.

- While AI-powered teaching assistants are in widespread use today, active use or development of artificial intelligence   teachers does not appear to be documented at this time.

Citations

- Kim, Jihyun, et al. "My Teacher Is a Machine: Understanding Students' Perceptions of AI Teaching Assistants in Online Education." *International Journal of Human-Computer Interaction*, vol. 36, no. 20, Dec. 2020, pp. 1902–11. *EBSCOhost*, https://doi.org/10.1080/10447318.2020.1801227.

- Thurrott , Stephanie. "Does Ai Help or Hurt in the Classroom? Teachers Share the Pros and Cons." *TODAY.com*, TODAY, 28 Mar. 2024, www.today.com/parents/artificial-intelligence-in-education-rcna145533.

- "Artificial Intelligence and the Future of Teaching And …" *US Dept. of Education*, US Dept. of Education, www2.ed.gov/documents/ai-report/ai-report.pdf. Accessed 17 May 2024.

Unanswered questions

Due to the lack of documentation on this topic, many questions are left unanswered as to how this kind of   project would affect the world.
    For example:

- How exactly would students respond to this style of teaching, rather than the normal methods in use today?

- What kind of funding would a project like this receive? Would this be a government funded research effort, or a privately funded effort?

- Many people today speculate that this form of teaching would be very beneficial to students, and provide a great amount of   positive development to the student being taught by this system. Would this be true? Are there any unseen issues that artificial intelligence teachers could cause to the future of our country, perhaps to the whole world?