Keefe Reuther
kdreuther@ucsd.edu
University of California, San Diego
School of Biological Sciences
Department of Ecology, Behavior & Evolution

Gathering Perspectives on Generative AI in Undergraduate Biology Education

The Issue

Since the public release of ChatGPT in November 2022, generative AI (GenAI) has rapidly entered the college classroom. New capabilities are continually emerging that impact teaching and learning environments. In higher education broadly, there has been an influx of conferences, preprints, publications, and working groups examining implications and applications of GenAI. ***However, there is a need to specifically examine the role of GenAI within undergraduate biology education.***

Goals

To explore this, I have developed a survey to distribute at SABER 2024.
This survey has three aims:

1. Gather instructor and student perspectives on how GenAI is impacting teaching and learning of biology.
2. Identify priorities for professional development on GenAI, for both SABER members and their home institutions.
3. Build a community of DBER scholars interested in investigating GenAI applications in undergraduate biology.

I have drafted this survey and welcome feedback from the SABER community to improve it prior to its implementation at the SABER 2024 conference hosted at the University of Minnesota.

What can we do with the results?

After collecting and analyzing the results, we can take the following actions:

1. Publish a perspectives paper to disseminate the survey results.

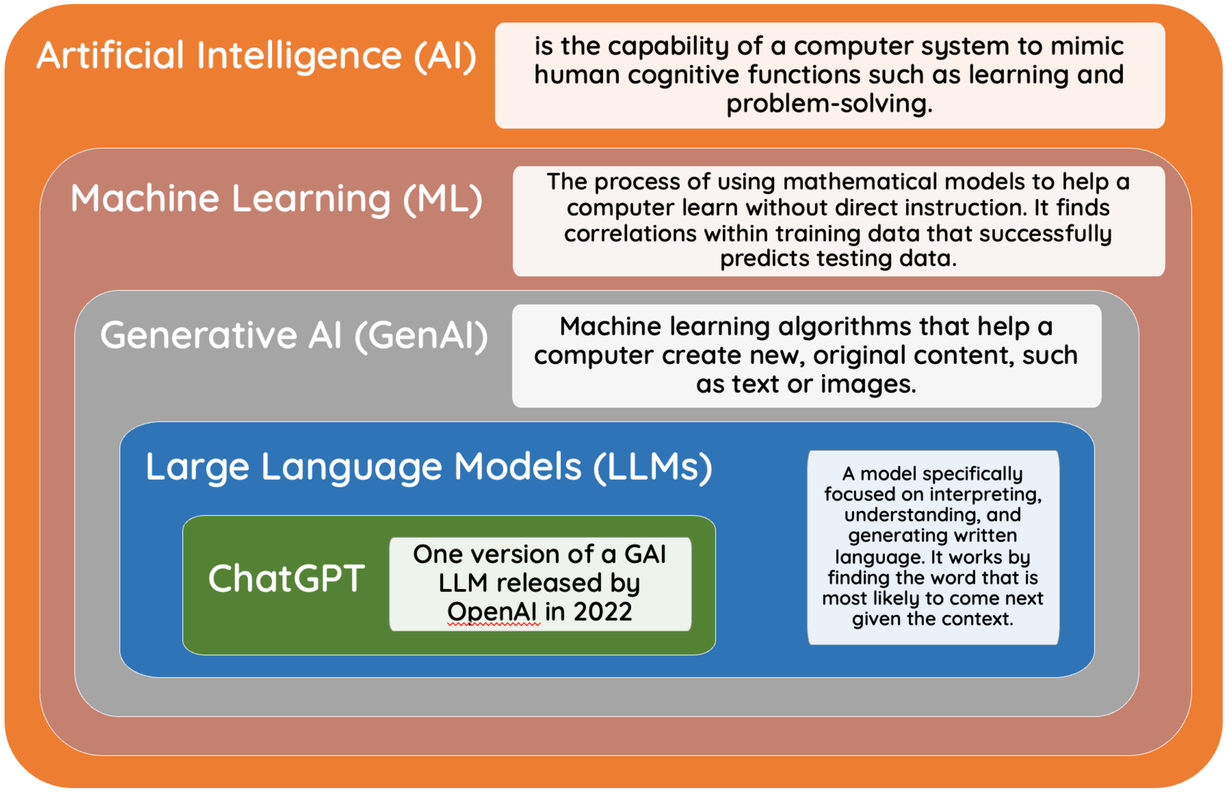
2. Plan professional development and training to meet biology faculty needs in the area of GenAI.

3. Establish a network of DBER (Discipline-Based Education Research) scholars focused on constructing, evaluating, and discussing GenAI's current and potential effects on biology education.

4. Serve as a foundation for developing infrastructure that facilitates the creation of open educational resources. This infrastructure will aim to reduce obstacles for faculty and students in using GenAI effectively to achieve educational objectives in the classroom.

Many thanks to...

Mike Wilton, Brian Sato, and Stanley Lo for their invaluable advice. The wonderful community of teaching faculty at UCSD, T3PN, and SABER for giving me the support to do what brings me joy.



QR code to provide feedback on the survey
It should take ~5-20 minutes

References:

- Baidoo-Anu, D., & Ansah, L. O. (2023). Education in the Era of Generative Artificial Intelligence (AI): Understanding the Potential Benefits of ChatGPT in Promoting Teaching and Learning. *Journal of AI*, *7*(1), 52–62.
- Chan, C. K. Y., & Hu, W. (2023). Students' voices on generative AI: Perceptions, benefits, and challenges in higher education. *International Journal of Educational Technology in Higher Education*, *20*(1), 43.
- Hsu, J. L., Chen, A., Cruz-Hinojoza, E., Dinh-Dang, D., Roth-Johnson, E. A., Sato, B. K., & Lo, S. M. (2021). Characterizing Biology Education Research: Perspectives from Practitioners and Scholars in the Field. *Journal of Microbiology & Biology Education*, *22*(2), 10.1128/jmbe.00147-21.
- Kaplan-Rakowski, R., Grotewold, K., Hartwick, P., & Papin, K. (2023). Generative AI and Teachers' Perspectives on Its Implementation in Education. *Journal of Interactive Learning Research*, *34*(2), 313–338.
- Wilton, M., Vargas, P., Prevost, L., Lo, S. M., Cooke, J. E., Gin, L. E., Imad, M., Tatapudy, S., & Sato, B. (2022). Moving towards More Diverse and Welcoming Conference Spaces: Data-Driven Perspectives from Biology Education Research Scholars. *Journal of Microbiology & Biology Education*, *23*(2), e00048-22.
- Wozney, L., Venkatesh, V., & Abrami, P. (2006). Implementing Computer Technologies: Teachers' Perceptions and Practices. *Journal of Technology and Teacher Education*, *14*(1), 173–207.

This poster was edited for clarity and conciseness using ChatGPT 4.0. The ideas, opinions, and facts presented are my own, for which I take full responsibility.