

# References and Resources

## About Ada Lovelace

### Articles:

Encyclopædia Britannica. (2021, January 14). Ada Lovelace. In *Britannica.com*. Retrieved September 21, 2021, from <https://www.britannica.com/biography/Ada-Lovelace>

Morais, B. (2013, October 15). Ada Lovelace, the first tech visionary. *The New Yorker*. Retrieved September 21, 2021, from <https://www.newyorker.com/tech/annals-of-technology/ada-lovelace-the-first-tech-visionary>

### Videos:

Biographics. (2018, April 9). *Ada Lovelace: The first computer programmer* [Video]. YouTube. Retrieved September 21, 2021, from <https://www.youtube.com/watch?v=IZptxisyVqQ>

Computerphile. (2016, December 21). *Computer science's wonder woman: Ada Lovelace - Computerphile* [Video]. YouTube. Retrieved September 21, 2021, from <https://www.youtube.com/watch?v=wnHHzBY1SPQ>

ForgottenDairies. (2017, July 12). *BBC documentary : Calculating Ada - The countess of computing 2015* [Video]. YouTube. Retrieved September 21, 2021, from <https://www.youtube.com/watch?v=QgUVrzkQgds>

Gresham College. (2015, November 10). *The scientific life of Ada Lovelace - Professor Ursula Martin* [Video]. YouTube. Retrieved September 21, 2021, from <https://www.youtube.com/watch?v=aBa7IBNSWp4>

Book (this is an alternate reality steampunk graphic novel, which may be slightly inappropriate for younger audiences, but it's fun):

Padua, S. (2015). *The thrilling adventures of Lovelace and Babbage: With interesting & curious anecdotes of celebrated and distinguished characters fully illustrating a variety of instructive and amusing scenes; As performed within and without the remarkable difference engine*. Pantheon Books.

## About the Difference Engine

Here is a short and slightly hypnotic visual of the Difference Engine No. 2 in action (approx. 2 minutes):

Computer History Museum. (2016, February 17). *The Babbage difference engine #2 at CHM* [Video]. YouTube. Retrieved September 20, 2021, from <https://www.youtube.com/watch?v=be1EM3gQkAY>

Here is a brief explanation of the Difference Engine No. 2 (approx. 4 minutes):

Wired. (2008, May 2). *Babbage's difference engine no. 2* [Video]. YouTube. Retrieved September 20, 2021, from <https://www.youtube.com/watch?v=0anlyVGeWOI>

Here is a longer description and demo with a little history of the machine (approx. 24 minutes):

Scoble, R. [Robert Scoble]. (2010, June 18). *A demo of Charles Babbage's difference engine* [Video]. YouTube. Retrieved September 20, 2021, from <https://www.youtube.com/watch?v=BlbQsKpg3Ak>

Here is a very detailed and complete explanation of the mathematics and mechanics of how it works:

MechanicalComputing. (2015, April 10). *Babbage's difference engine no. 2* [Videos]. YouTube.

- *Part 1: The method of finite differences:* [https://www.youtube.com/watch?v=PFMBU17eo\\_4](https://www.youtube.com/watch?v=PFMBU17eo_4)
- *Part 2: The calculation section:* [https://www.youtube.com/watch?v=vdra5Ms\\_9s](https://www.youtube.com/watch?v=vdra5Ms_9s)
- *Part 3: Interlocks:* <https://www.youtube.com/watch?v=sklp9WutBhs>
- *Part 4: The control section:* [https://www.youtube.com/watch?v=9wld\\_ZePJVs](https://www.youtube.com/watch?v=9wld_ZePJVs)
- *Part 5: Initialization:* <https://www.youtube.com/watch?v=vgPLEhqFifg>

Here is a difference engine built with LEGOs:

Carol, A. (n.d.). *Difference engine: Building a calculating machine using LEGO® pieces*. Princeton University. Retrieved September 27, 2021, from <https://www.cs.princeton.edu/~chazelle/courses/BIB/BabbageEngine.html>

Here is an article about what may have been a punch card computer program left by Babbage:

Sterling, B. (2017, May 14). Charles Babbage left a computer program in Turin in 1840. Here it is. *Wired*. Retrieved September 27, 2021, from <https://www.wired.com/beyond-the-beyond/2017/05/charles-babbage-left-computer-program-turin-1840/>