Quick, do you recall the person who's considered the very first computer programmer? That's right, the very first computer programmer! Well, you might think for a minute and say maybe it's Bill Gates. Or maybe Steve Jobs. Or perhaps you reach *waaay* back and say it's Alan Turing, you know, the famous computer-type guy from the 1930s or so.

Nope, sorry, not even close! To find the person often cited as being the first computer programmer you have to go back *a full century* before Turing's amazing activity near the middle of the 20th century. And that person is Ada Lovelace. You got it—a *young woman named Ada Lovelace!* And her life story sounds much more like fiction than non-fiction. It's fascinating and it takes place more towards the beginning of the *Industrial Revolution*, not our current *Digital Revolution*! To unpack that story, we should start with…

Charles Babbage, the guy who's considered by many historians as "father of the computer." Babbage was an Englishman who lived through much of the 1800s—he was an inventor, a mathematician, a mechanical engineer, thinking and inventing seamlessly across all these fields of study. And he was a noted mover and shaker in the world of ideas, too, from division-of-labor economics to philosophy and theology. In an era of great change, Babbage was head and shoulders above the vast majority of his peers!

As to computers, Babbage stood on the shoulders of inventions going on with looms in the Industrial Revolution and designed what he called the Difference Engine. That's spelled with capital letters "D" and "E" like a proper noun, and its design was to compute values of polynomial functions. And Babbage also designed the Analytical Engine which changed focus from arithmetic to general-purpose computations. Way ahead of his time, modern tech experts have often called Babbage the *father of the computer*.

By the way, do you remember the computer retail store named Babbage's that started in Dallas, Texas, then grew to 300 stores, and was ultimately tucked under the operations of Game Stop? 150 years later after he died, Charles Babbage is remembered in a fruitful way! How many can say that? Still, we happily recall that *every person* is judged by Jesus…and for the believer, that can be in the form of eternal rewards!

But what about that Ada Lovelace? Well, let's first talk about her father, Lord Byron. Yes, *that* Lord Byron, one of the most adored poets in British history—most famously with his work titled *Don Juan*. Lord Byron's works are cherished by many to this very day. Byron was also known for his advocacy of freedom and died at age 36 in the midst of helping the Greek people fight for *their* freedom. But Byron led quite an immoral life, and he abandoned his daughter Ada at one month in age. Still, one of Byron's most famous poems lifts up Ada, and his last words were a lamentation and his sending of a blessing to Ada, his first child.

In a striking note of historical irony, Lord Byron was a voice for Ned Ludd and his followers (who are known as Luddites). Even to this day, the label *Luddites* means people who blindly fight against any replacement or perceived threat to human processes by machines, computers, or technology. So, while Byron was an advocate for Luddites who raged against mechanization in his time, Byron's daughter Ada is known as *the first computer programmer* in history! Talk about irony! And…there's a telling story undergirding that!

Lord Byron split from Ada and her mother and later had several other children out of wedlock. Disgusted by Byron, Ada's mother Annabella, a mathematician, pointed Ada in the direction of mathematics instead of a more "artistic" path like that of Ada's father. And, of course, that direction laid the groundwork for Ada's ultimate connection with Babbage and the whole idea of a general-purpose computing machine.

Ada was part of elite society in England, by lineage and by marriage, so she had a certain standing. Still, when Ada became enamored with Babbage's work and asked for him to become her tutor, he declined. But her "wedge" opportunity came later. Babbage was to present at a conference in Italy about his Analytic Machine, and Ada translated a description of it from the French for a science journal. When Babbage learned of that, he suggested that Ada publish her own informed opinions about it. Babbage worked with Ada on that project and gave her substantial, meaningful credit for her work. in this way, both Ada's publication named *Notes by the Translator* and her legitimate reputation came into being.

Nowadays—a couple of centuries later—Ada has been rewarded with a worthy, popular mini-biographer in the talented Walter Isaacson. You may remember Isaacson—he wrote an blockbuster biography of Steve Jobs…and he has also written book-length bios on Albert Einstein and Leonardo Da Vinci and Henry Kissinger. So how did Isaacson specifically approach capturing the life and contributions of Ada Lovelace?

Remarkably, Isaacson pretty much made Ada Lovelace the Alpha and the Omega—the beginning and the end—of his outstanding book *The Innovators*. That book is his version of a history of the digital revolution. Starting with Ada in the first chapter, Isaacson migrated his narrative across many inventors, innovators, companies, as well as the inventions themselves: you know, milestones like the transistor, the microchip, software, and the web—alongside a cast of unforgettable characters, each playing a role in the revolution.

But, right there in the very first chapter of that book *The Innovators*—capturing a sense of those *Notes* that Ada *published in 1843*—here's how Isaacson summarizes Ada's four key, groundbreaking concepts:

- The idea of a general-purpose machine that could do an unlimited and changeable array of tasks
- The reality that the general-purpose machine need not be limited to numbers and math
- The reality of intricate computer programs
- A table and diagram showing precisely how algorithms would be fed into the computer

Ada's unique publication of *Notes* worked to cast a wider vision of possibilities than mere calculations, more than a simple expectation of Babbage's machines. Indeed, Ada was interweaving the capacities of humanity and technology together into untold combinations that we now take for granted. Hey, take a look at your mobile phone!

Here's a specific quote by Walter Isaacson himself about Ada's contribution: "…it is fair to say that the algorithm and detailed programming description for the generation of Bernoulli numbers was the first computer program ever to be published. And the initials at the end were those of Ada Lovelace." Wow. How's that for being, say, over a century ahead of your time? *You go, Ada Lovelace!* And you go, Walter Isaacson…kudos for astutely documenting the place of Ada in the digital revolution! Your book is valuable!

But what about the last chapter of Isaacson's book…titled "Ada Forever"…the culmination of Isaacson's mini-history of the digital revolution? It finishes with Ada, of course, and her idea of "poetic science," that humans bring the creativity and more to the table. Shades of daddy Lord Byron—it isn't *all* about machines! But Ada knew it *is* something *extraordinary* about machines! Isaacson approvingly quotes John Kelly, research director for IBM, "The machines will be more rational and analytic. People will provide judgment, intuition, empathy, a moral compass, and human creativity." Words to remember in an era of both anticipation *and* fear about AI…Artificial Intelligence. Yes, digital technology is *beyond* amazing. But it exists to serve humanity, not vice versa. Ada Lovelace didn't *unthinkingly* leave her famous poet father behind—but she did accurately foresee a world of poetic science where technology and people fruitfully intertwine. Indeed, we are living out a powerful version of Ada Lovelace's vision and understanding.

Here's some spiritual context. At a point in time of great frustration with Charles Babbage, Ada wrote this: "My own uncompromising principle is to endeavor to love truth and God before fame and glory. Yours is to love truth and God; but to love fame, glory, honours even more." Continuing, Ada added this. "I wish to add my might toward expounding and interpreting the Almighty and his laws…I should feel it no small glory if I were able to be one of his most noted prophets." Do you think a believer can speak with a prophetic voice in a specific field of endeavor that's not directly considered *theological?* Ada implied that.

Lastly, Isaacson wisely captured these words of Ada. "What is imagination? It is the Combining faculty. It brings together things, facts, ideas, conceptions in new, original, endless, ever-varying combinations….It is that which penetrates into the unseen worlds around us, the worlds of Science." Ada wrote that in 1841.

Two years later, in 1843, Ada's *Notes* were published in a significant scientific journal at age 28. Nine years later, Ada died of uterine cancer, age 36. First computer programmer. Poetic science. Lover of God. Amen.

A&A: Application & Action

1. Do you think a Christian believer can speak with a prophetic voice in a particular field of endeavor that's not directly characterized as "theological"…working in ways both small and great to give glory to Jesus? If so, can you give examples? If not, why not?

2. Do you fear the prospect of Artificial Intelligence (AI) because it can be used for evil? A baseball bat or a chainsaw can be used for evil. Or is such technology inherently "bad"…? What should be our response, if any, to AI? Discuss.

3. Ada Lovelace clearly believed she was serving where God wanted her to serve. Do you believe that you are totally enveloped in God's purposes, regardless of your vocation? Discuss.