

2 AUTOMATION

PJD's opening remarks

Automation is an old word, meaning to get a machine to do all or most of a job humans want done.

It derives from “automaton”, meaning a machine that imitates some sort of human behavior but is mindless and mechanical.

The ancient Greeks had a preoccupation with time. They invented clocks to automate time keeping.

The 1700s were a time of many innovations of automation.

In the 1700s, looms became automata for weaving cloths with patterns. The Jacquard Loom used punched cards and inspired the first computers and tabulating machines in the late 1800s.

The 1700s saw the steam engine, which eventually powered the industrial revolution. Many things were automated: factories, coal mines, railroads, pumps, and more.

In the 1770s there was a famous automaton, the Mechanical Turk, that played chess. It was eventually exposed as a hoax – there was a small person inside the cabinet. However, it stimulated interest in automata that do mental tasks rather than physical tasks.

In the 1850s Charles Babbage invented the first general purpose computer, the Analytic Engine, to compute any numbers, especially those in standard tables such as navigation tables, without errors.

In the 1940s, the first electronic computers were invented ... automata for calculating gun firing tables, simulating thermonuclear processes, and breaking codes.

It did not take long for early computer pioneers to speculate about computers that would have the powers of a human brain – “electronic brain” was a common popular term in the 1950s.

Today, Dr Josh Kroll will take a look at automation's long history before AI came on the scene, and what AI has done to change what can be automated.

Although Josh is in his third year as a CS faculty member, he has a long history with NPS. We first met him back in 2003 when he was an intern who visited us for a summer from York High School. He got hooked on computers. He went to Harvard for his undergraduate degree and Princeton for his PhD. He has been particularly interested in the way computers and human communities interact.