



COMPUTER PROGRAMMING

a digital writing revolution

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OVERVIEW

This writing system opens up an endless range of possibilities for current and future technological developments. Any form of computational technology or software program likely involves programming in order to function: laptops, phones, word processors, games, websites, traffic signals, printers, drones, etc. **Computer programming** plays a significant role in today's society as computers control much of daily life.

When writing a **program**, the **programmer** repeatedly calls on packages of code called **functions**. There are many different types of functions, and these are customizable—the programmer can name them whatever they want. The programmer compiles these functions together in lines of code, called **statements**, to create instructions for the computer to follow. Coding statements, just like statements in human language, have syntax and grammar. A common type of statement is a “**while loop**”, which in which a function repeats as long as the defined statement remains true.

FORTRAN

1957

COBAL

1959

BASIC

1964

SQL

1972

C++

1982

JAVA

1995

DEFINITIONS

Computer program: set of instructions that tell computer what to do

Computer programmer: person who writes code

Machine Level Language: language that the computer understands, made up of zeroes and ones; defines a specific set of operations

Assembly Level Language: symbolic codes that must be converted back into machine language; more readable format

High Level Language: much more like human language; most used by programmers

```
$access == false ) {  
  // Remove the rule as there is cur  
  $details['access'] = !$access;  
  $this->_sql->delete( 'acl_rules',  
} else {  
  // Update the rule with the new ac  
  $this->_sql->update( 'acl_rules',  
}  
foreach( $this->rules as $key=>$rule )  
  if ( $details['role_id'] == $rule  
    if ( $access == false ) {  
      $this->rules[ $key
```



SIGNIFICANCE

The invention of computer programming marks a **revolutionary change** in modern society. The high value of technology in the world today manifests through the fact that computer programming is a highly desirable skill and programmers can use it to create several different types of programs used by countless companies. The modern **digital age** opens up doors for new modes of communication and dictates the control and flow of information. Furthermore, programs allow for efficiency and ease. Though this has many positive impacts, it also leads to a lost sense of agency, satisfaction, and fulfillment.

With the development of modern technology comes social and political change. **Datascares** made up of **metadata** identify the way that information is used, where it goes, and who uses it. This builds upon the shift from a disciplinary society to a control society based on “big data”. Additionally, a form of “**cognitive capitalism**” dominates the datascape: collective knowledge is transformed into machine intelligence.

The rise of advanced programming technology such as **Artificial Intelligence** and drones, while providing notable benefits, also possess great technological risk. For example, AI can threaten people's privacy, safety, and security, and is not always 100% reliable. In addition, **algorithmic bias** poses a threat to the wellbeing of many, as it frequently excludes non-white racial groups. New forms of technology that use AI software no longer require lines of code to function but can learn independently. The world must therefore take caution against the domination of automation.

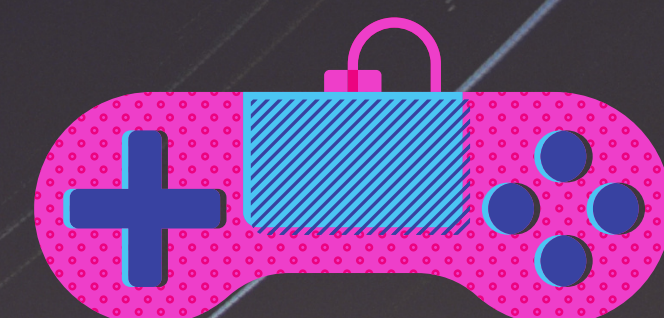
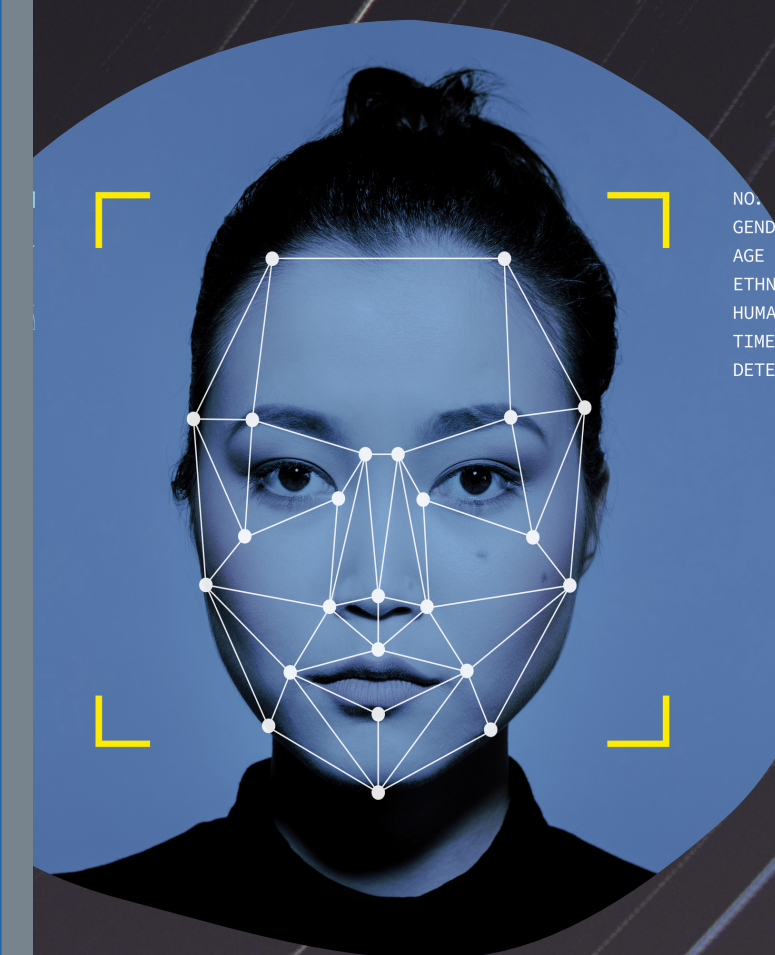
HISTORY

The first machine algorithm was written in 1843 by mathematician **Ada Lovelace** for Charles Babbage's Difference Machine. This laid the foundation for all programming languages. A century later, in 1944, Konrad Zuse invented the Plankalkül (Plan Calculus), in which pieces of code are repeated over and over to perform routine operations.

Then in 1949 came the creation of the first **Assembly Language**, a **Low-Level Language** that uses a simplified code language to give specific instructions. That same year, John McCauley and William Schmitt invented Shortcode, the first **High-Level Language**.

In 1952, Alick Glennie invented the language family of Autocode. This was the first **compiled language** to be implemented, meaning the language is translated directly into machine code using a compiler.

At this point in history, several different **coding languages** come to the fore. Some of the most popular in use today include JavaScript, C++, Python, PHP, Ruby, and SQL.



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