Computer Information Systems: The Next Decade

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Executive Summary

For the past decade, the computer technology industry has exploded to unprecedented capabilities. University students are eager to partake in computer related majors, the most recent being computer information systems. STEM majors have been a focal point of university admissions, but they also require rigorous and time-consuming coursework (Zuo, et al., 2021). Computer information systems is a gray area, as it still demands some of the STEM-like qualities; however, it does not require some of the math-intensive courses required in traditional computer science courses. This exemption is an attractive feature, but university students still battle with the thought of the major being a lucrative, worthwhile degree to capture. This paper will provide insight into what the career paths for CIS majors will look like in the next decade. It will also examine some of its challenges and opportunities in the field. It will finally be concluded with statistical evidence both in support and against the notion that students who obtain a computer information systems degree will be successful after university.

Introduction and Background Research

Computer Information Systems (CIS) includes tools to understand the intersection of business and technology. It can also be defined to include organizational, managerial, and societal aspects of business, particularly pertaining to information technology (Zuo, et al., 2020). As mentioned in the abstract, students faced a dilemma between obtaining a degree in engineering (computer science) and a degree in business (information systems). While computer science offers a variety of technical career directions revolving around software engineering, information systems prepares students for similar career paths with a greater focus on business and management. Today's students recognize the importance of choosing a degree that aligns with future opportunities.

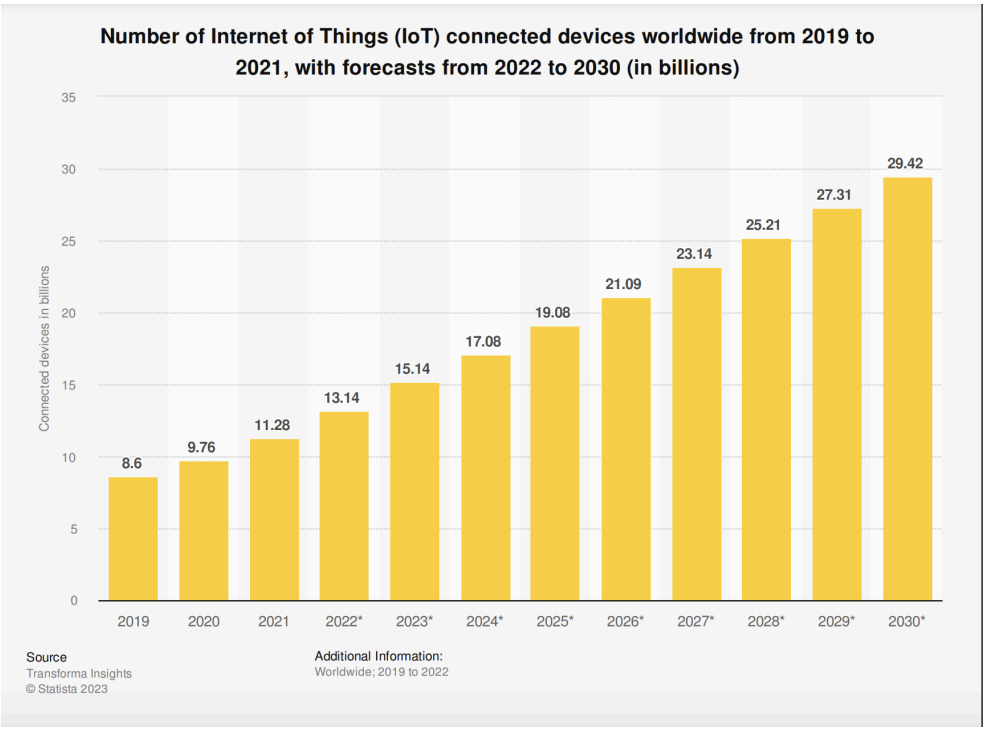
The following are some career paths that closely align with a CIS degree:

- Artificial Intelligence, or Machine Learning Technology
- Traditional Database Administrator
- Information Technology Support
- Cybersecurity
- Data Science and Analytics
- Network Engineering
- Automation Engineering

(Zuo, et al., 2020)

The study of computers can often be referred to as the second world. There are a multitude of career paths, each with its own upside and downside. The influx of students into the world of technology has caused a demand for a higher level of skills (Chipidza, et al., 2019). According to

research, the basic skills that a CIS degree used to provide are no longer enough to keep up with the demands of the field. The career path a CIS major chooses will determine their success in the field.



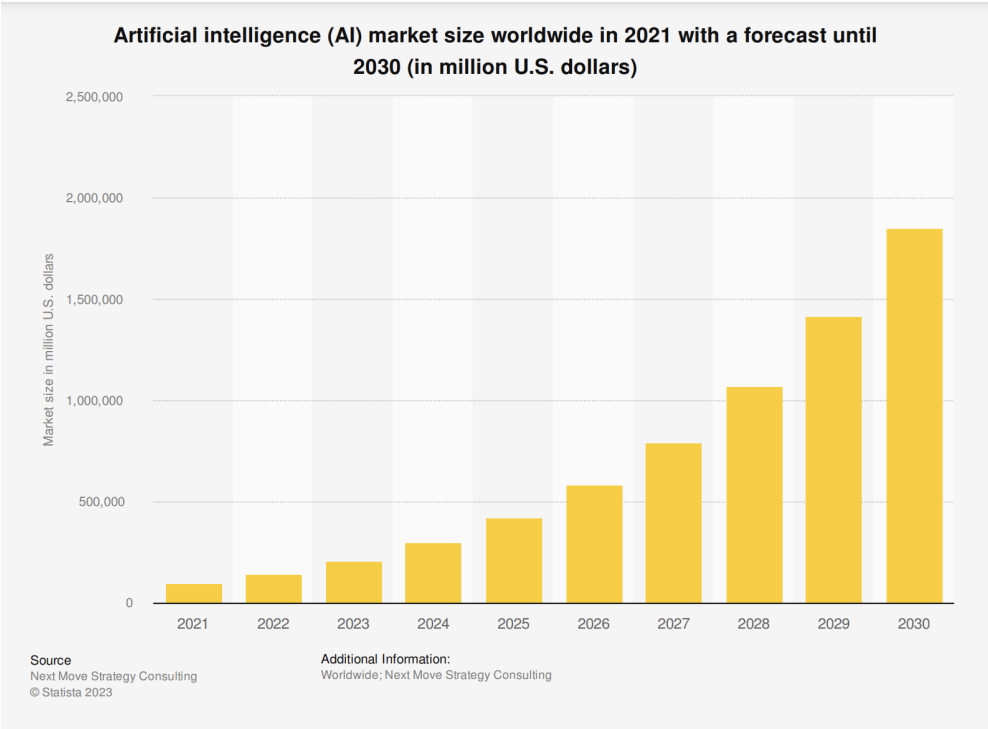
(Vailshery, 2022)

Will Computer Information Systems be a Viable Degree Choice for the Next Decade?

Artificial Intelligence

The field of artificial intelligence (AI) refers to the development of computer systems that perform tasks that previously required human intelligence to complete. Artificial intelligence has transformed the way businesses and corporations operate by amplifying speed, accuracy, and efficiency. These advancements have allowed a profusion of tasks to be automated, allowing businesses to cut out a mass amount of redundancy among their IT workers (Yuan, et al., 2021). Additionally, artificial intelligence has made it possible to analyze large datasets at a rapid rate, producing usable, on-demand
information.

One of the biggest advancements in artificial intelligence is the ability to make predictions and identify patterns that are typically missed by human IT specialists. This has led to the development of new tools for trend analysis, particularly for machine learning algorithms such as ChatGPT (Wei, et al., 2021). ChatGPT is a virtual machine that can solve complex problems much faster than a human can.



(Thormundsson, 2023)

These findings suggest the evolution of trend mobility is closely linked to the development of embedded devices. Some of these include tools that detect sleep patterns or heart rates. Information systems now incorporate AI machines to help improve computerized decision-making and automate tedious processes (Wei, et al., 2021). In contrast, the demand for information systems majors specializing in business intelligence is decreasing due to these same advancements.

Health Information Management

The health industry is one of the biggest industries that power the world today. Although this is partially unique to the United States, the health industry is one of the largest revenue-generating industries worldwide. From pharmaceuticals to cancer treatment or even the occasional checkup, clinics across the United States control a vast portion of the market today (Han, et al., 2021). The health and pharmaceutical fields use a variety of technological tools to streamline their administrative and clinical processes.

Health Information Management and Technology (HIM and HIT, respectively) are the two distinct areas that carry out the task of securing information security in medical facilities (Han, et al., 2021). Information security is especially vital in the health field due to privacy concerns. The demand for HIT professionals who specialize in electronic health records has increased due to

the concern for protecting sensitive data in healthcare facilities. These officials bridge the gap between different healthcare providers as a means for easier access, verification purposes, and enhanced security features to protect sensitive data. According to a study conducted by the Ponemon Institute, the average cost of a data breach in the healthcare industry is about $7 million (Han, et al., 2021). As a result, there is a growing demand for HIT professionals with a background in data security to minimize the impacts of data breaches.

Automation Technology

Through the past two centuries, most of the industries that the world has in the United States were built through industrialization. Through the early days of colonial America, colonizers who had skills in trades such as fishing, building, or farming became an asset to their communities. By the 1900s, America was largely powered by machinery, and industries such as refineries and oil rigs had been completely revolutionized. The majority of the world investigated how they could get a leap on the competition, which ultimately led to the birth of automation technology (Zhang, et al., 2019).

Automation technology gave the world the power to complete manual labor jobs at a fraction of the cost (Zhang, et al., 2019). Information Systems majors have sought ways to bring automation technology even further to the forefront of manufacturing. The previous skill set required to work in machine learning is once again changing due to the way information systems majors revitalize what automation technology provides. 20 years ago, an individual could pursue a position at a factory line and make a living. In 2023, it will be a substantially harder task to get this same position, as automation technology has eliminated a multitude of jobs that were previously sustainable.

Database Roles

Some commonly known database entry services are MariaDB, Excel, and Access. Through these programs, individuals can compile mass amounts of data into an informational form for business-related purposes. Database administrators possess the duties of assessing security risks, managing the availability of the database, and managing the permissions of users that have access to the database. Due to the recent rise of cloud computing, traditional database administration roles have been on the decline.

Cloud Computing

Cloud computing provides on-demand storage of data and data systems that can be accessed from remote servers instead of physical locations (Kumara, et al., 2023). This essentially eliminates any need for a database administration manager at virtually any physical location. Cloud computing has also eliminated the need for traditional backup and recovery technicians. These technicians have the task of accessing previously deleted or corrupted data and transferring it back into a form that is once again usable. Cloud computing has the ability to

create virtual backup disks on multiple platforms, inherently allowing a user access to emergency disk files without having to contact support technicians.

Conclusion

Computer Information Systems majors will continue to have a place in most industries that operate around the world for the foreseeable future. Due to the rapid growth of artificial intelligence, entry-level skills in CIS are in less demand for the next decade. Those who center their degree around technical skills such as machine learning and cloud computing will have more success than their counterparts. Prioritizing courses emphasizing automation technology or artificial intelligence will give students an advantage over those focusing on traditional database design roles. Even those who advance into higher positions, such as senior database administrators, are less likely to have a position within the next ten years (Yuan, et al., 2021). There is a positive correlation of nearly an 11% increase in computer information systems majors that will be in demand for the next decade as well (Chipidza, et al., 2019). Students who are willing to continuously update their skills and adapt to the changing demands of the industry will be successful in computer information systems.

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