DATE: October 31, 2020

TO: A New Student to On-Line Education, Uninitiated to the Canvas Program

FROM: James Hernandez

SUBJECT: Computer Science Research and Recommendations

**INTRODUCTION**

In this report I will be discussing the history of Computer Science and how the evolution of Computer Science has affected the types of jobs people pursuing the degree could achieve and the many different types of jobs that Computer Science has birthed over the years. I will also briefly be discussing the many professional organizations that help in support for this career. After checking several useful websites and reading articles this is the information that I have found.

**HISTORY**

Computer Science has helped cultivate the progression of computers from the large trivial analog computational machines to the small complex machines that could fit in our pockets. Here we will be discussing the history of Computer Science from the beginning, to what it has led to in the modern day.

**At the Beginning**

The beginning of Computer Science began before the discipline was even founded; the earliest system discovered thus far has been the abacus which was used for analog computations in 2700 – 2300 B. C. (Chen and Rossman, 2013). Before Computer Science became its own discipline, it could have been derived from forms such as physics and mathematics with systems such as the Antikythera mechanism used in ancient Greece and from German mathematician Gottfried Liebnitz introducing the first binary number system in 1703 A.D. These creations along with many others piled on top of one another, taking key concepts from each other to produce the first computer algorithm developed by Ada Lovelace in 1843 to the creation of Turning Machine developed by Alan Turning in 1936(Chen and Rossman, 2013). “This progression, from mechanical inventions and mathematical theories towards modern computer concepts and machines, led to the development of a major academic field” (wiki, 2020).

**The Modern Day Sprint**

As time went on, innovations were appearing one after another from IBM introducing the first MS-DOS Computer in 1981 to Tim Berners-Lee inventing the World Wide Web in 1990. All these new innovations were taking from what previously was to making something leaps and bounds greater than the previous. All leading towards the gates that we all know as the modern-day computer; this was solidified in 2012 when Scientist cultivated brain cells on a microchip advancing neurochip technology. The modern day computer in this meaning of the since, would be referencing computers we use in current day not computers that were made for personal use in the 2000s because comparing those computers to what we have now would be night and day. I say this because now computers are thinner, lighter, and more accessible to their predecessors before them. Now computers fit in your pocket, on your wrist, or if need be even inside your body to help you function. None of these achievements would have been possible if not for the study of Computer Science. Compressing large mechanical inventions to being fully digital using minimal hardware. Because of this Computer Science has evolved as a study from what it was to what we study today.

**EVOLUTION OF COMPUTER SCIENCE**

As time went on, the spectrum of studies in Computer Science did as well. It was no longer aimed towards building certain systems focused on a finite set of areas but a wide range of studies to be focused on multiple areas which in turn created new jobs that were not on the market before. Having Computer Science broad its areas of focus created new jobs and careers for everyone because the essence of computer science was to always be progressing, creating, and improving systems to better society.

**What Types of Jobs Were There?**

Before the modern-day Computer Science Study with its many areas of focus and wide job variety, there were limited areas in which Computer Science focused on with limited types of jobs you could do. This was due to the early age of computers and the lack of technology that was available at the time. What was offered to you were jobs and careers that relied on more technical knowledge such as Computer operator, computer programmer, drafter, computer service technician, and operations/systems research analyst. Even though jobs such as this still exits today, there are many more to choose from due to the wide variety of disciplines that Computer Science now covers. For example, an area of study that was and still is under the Computer Science Umbrella is Computer Engineering which “a branch of engineering that integrates several fields of computer science and electronic engineering required to develop computer hardware and software” (Wiki, 2020). With the ever-growing expansion of new disciplines to be studied in Computer Science gave rise to new jobs that we see today.

**What Types of Jobs Can You Get Now?**

Today there are many difference disciplines that computer science did not have before such as; Application Development, Software Engineer, Game Programmer, and Database analyst. There are so many different opportunities created with the evolution of Computer Science it is amazing. Before this expansion, to be a part of this career you would have to had gone to a prestigious school where it was taught and have an interest in the very limited technical sides such as research or operating systems developer. However, today there is an abundance of types of jobs available to you like Web Developer, Systems analyst, Network architect, Full-Stack developer, Database administrator, Cloud Computing Engineer, and Mobile application designer or developer, Artificial intelligence and machine learning and so much more (Kowarski, 2019).

**Prediction Jobs for the Future?**

In the direction that Computer Science is going, there will be a need for more Database oriented jobs which would fall under database management, another direction would be in the realm of artificial intelligence. To be building more complex systems relying on a tremendous amount of data. Reasoning behind this prediction is “The world’s most valuable resource is no longer oil, but data” (Leeward Capital Management, 2019). Many applications and structures that we use today rely on data, data being pulled from a database to be used in systems we run everyday which is invaluable to companies. This is why I say that in the near future there will be a larger job market for database management as well as artificial intelligence positions.

**SUPPORT GROUPS FOR COMPUTER SCIENCE**

The community for Community Science is widespread, especially with the inclusion of many tech companies around the world needing computer science majors to work at their companies. There are many community groups that you could locate that will help you connect to others and show you how to pursue your career endeavors in the field. Some programs to list off the top would be organizations such as SHPE, Society of Hispanic Professional Engineers, and Code2040 which is a high program that helps you connect and receive job opportunities from top tech companies around California. There are many other groups such as these, tailored towards helping you grow in your career.

**CONCLUSION**

Computer Science has changed over years from whence it was founded. There are more options in deciding on what to pursue in the career as well as the many communities that you could join to help nurture your career. Pursuing a career in computer science can open many opportunities for you, there are a great deal of different jobs that you could have depending on your interest in the many disciplines that are available to you. The evolution that Computer Science has taken is in the direction of progress making more job opportunities for those in the career. Pursuing a career in this field would have a potentially huge outlook on your future.

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