Computers are everywhere, from smartphones to washing machines, refrigerators, HVC systems, routers, game consoles, laptops and desktop computers, automobiles, traffic lights, airplanes, elevators, medical equipment, space rovers, and critical government infrastructures like water and power.

We are surrounded by computers, and we are very much reliant on them. Without computers, society would collapse as we know it. According to (Laricchia, 2022), the average American has access to more than ten devices in their household. According to an article published by Indeed.com (Top 25 In-Demand Careers in 2021 | Indeed.com, 2021), Software Engineering is the highest-paying career path and the most in-demand profession in today's market. Hundreds of applications and video games are released every day, written by teams of software engineers.

After looking at all this data, it is clear that computer science undergraduates are sought after by hundreds of tech companies. However, the question remains, why should anyone do a post-graduate degree in computer science when many companies are happy to hire undergraduate students and pay them a six-figure salary right out of university?

Not all students who receive an undergraduate degree in computer science are ready to join the workforce. Some graduates feel like they have not obtained enough knowledge or do not have enough confidence to take on a role in a tech company. After all, computer science is a large field that deals with artificial intelligence, automation, algorithms, data manipulation and transformations, networking and communication, simulation, and virtualization.

Some students cannot find employment and decide to continue their education to find a better-paying job. Some want to pursue academia and teach at a university level. On the other hand, some enjoy the learning process and would like to continue their education by obtaining either a master's degree or a Ph.D.

However, while all of these are valid reasons to pursue a post-graduate degree in computer science, the value of receiving one cannot be understated. Pursuing a post-graduate degree will help students learn many things like conducting research and experiments, relying on facts and science rather than opinions, improve their writing skills. Furthermore, it will help improve their time management skills, discipline, and organization. Finally, it will help students make connections with other people, which will help them further their careers.

Moreover, there is another side to pursuing a post-graduate degree—its impact on our society and the computer sciences field. Bad, slow, and poorly architected software is all around us. We interact with it every day, which is a big problem. Back in the 80s, computers used to be very slow, and software engineers had to write well-optimized software that ran well on many different types of computers with many different configurations. However, computers have increased in speed substantially since then, and software engineers began to care less and less about writing fast and efficient code.

To see this in action, update any computer's Windows operating system and notice how slow it becomes and how often it crashes. It might even delete some personal files. Another example is that visiting any website, will fire tens of different API calls to different servers all over the world to load a simple HTML page. Finally, download any AAA video game title made in the last five years and notice how full of bugs it is or how slow it runs.

Some of these issues cannot only be attributed to writing bad code. Some of it is due to poor project management or the rapid rise of the internet that allowed software engineers and project managers to develop the "Ship it now and patch it later" mentality. However, it is clear that the quality of software written today is very poor.

With all that being said, does pursuing a post-graduate degree mean that the quality of software written will improve? Not necessarily. However, it can undoubtedly deepen the understanding of what the machine is doing on a hardware level for software engineers—leading to taking certain decisions early on in the project development lifecycle that improves the application's speed and reduce bugs.

Finally, my expectations of undertaking a post-graduate degree in computer science are many. Some of these are to master my software engineering skills, acquire a deeper understanding of the inner workings of computers, learn more about networking, understand how to write a more secure software, and finally research and learn how to write a basic operating system in C and x86 assembly.

Reference List

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