

PPP Project: Blockchain and Scaling Enterprise Networks

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Abstract

Computer science is a discipline continuously growing and making an impact in different areas of interest and other fields. As a consequence the ethics of this career have been and continue to be discussed as new morals may be compromised by technology. Thanks to this, exploring different organizations and other resources is fundamental. Not only for educational purposes, but also to create connections that will give professional insight on the use of computer science and help an individual develop in this field.

Keywords: Computer Science, IEEE, AAAI, OJ-CS, Ethics, Minor, ACM, Artificial Intelligence

Introduction

As time progresses new technology advances that affect our world, usually impacting globalization and other important areas of human civilization. (McCain, 2023) Because of it, computer science plays an important part in the development of these technologies. In consequence, important organizations such as the Institute of Electrical and Electronic Engineers (IEEE) or the Association for the Advancement of Artificial Intelligence (AAAI) have done research to report discoveries, issues and more useful information for the field of computer systems. However, it is also that rapid growth that makes this field complex and time consuming that it might overwhelm newcomers. (Stahl et al., 2016) Therefore, this article will be focusing on giving a glance to the ethics of computer science (CS) and strategies that a rookie may follow and consider in their CS career path.

Strategies to Find Success in Computer Science

The first step in finding success in CS is being aware of what this field brings to the table. Exploring these things may help a student find information on what branch of CS would be appropriate according to the interest of the student. But as in any major this discipline comes with different hurdles, some more challenging than others.

Blockchain & Functionality

The rules that ethics in computer standards bring vary in the professional world. Different organizations on the field have similar but slightly different ethics. For example the Association for Computer Machinery (ACM) has its code of ethics and professional conduct which helps guide computing professionals. As the ACM website states “the Code is not an algorithm for solving ethical problems; rather it serves as a basis for ethical decision-making”

(*ACM Code of Ethics and Professional Conduct*, n.d.). This is due to several matters when developing new technologies which may come with certain moral compromises that may not be acceptable as proper ethics. Therefore the understanding of these is fundamental to not only get an insight of the possible consequences of these technologies, but also to assess them in order to create something good according to the ethical standards (Stahl et al., 2016). To ease this process, ACM broke their ethics into four sections. First one being the general ethics principles focused on privacy, trustworthiness, respect, avoidance of harm, etc. To describe it in one word, to protect the rights of the people (*ACM Code of Ethics and Professional Conduct*, n.d.). Second section on ACM code is the professional responsibilities such as “strive to achieve high quality in both the processes and products of professional work, maintain high standards of professional competence, conduct, and ethical practice, know and respect existing rules pertaining to professional work”, just to name a few (*ACM Code of Ethics and Professional Conduct*, n.d.). Third section, mentions professional leadership principles being heightened by the ethics on managing personal and resources, group promotion, giving group opportunities and compliance with the code (*ACM Code of Ethics and Professional Conduct*, n.d.). Finally the fourth section is about following the code and measures that need to be taken in case of violation (*ACM Code of Ethics and Professional Conduct*, n.d.). AAAI has its own adaptation of the rules since artificial intelligence (AI) is part of the computing (AAAI, 2023b). IEEE has similar but less lengthy ethic rules for their organization (*IEEE Code of Ethics*, n.d.b).

IEEE and AAAI

IEEE has its origin as two different organizations of scientists that merged in January 1963. The first being the American Institute of Electrical Engineers (AIEE) formed in 1884 in New York, USA and focused on the advancements of electrical power and the impact on people's

lives at the time. The second organization was the Institute of Radio Engineers (IRE), founded in 1912 which focused on wireless communication with telegraphy at the time. “IRE was devoted to radio and broadly to electronics” (*History of IEEE*, n.d.a). Nowadays, IEEE puts effort into cultivating and promoting technological innovation and has become one of the largest organizations worldwide having 427,000 members from 190 countries, of whom 64% are americans. Which makes IEEE an remarkable organization. (*IEEE Strategic Plan 2020-2025*, n.d.e).

On the other hand, AAAI was formed in 1979 as a non-profit scientific society with the primary goal of promoting research on artificial intelligence (AI). At the same time, the mechanisms aim to foster the understanding of the underlying systems of AI as technology progresses. Making AAAI one of the attractive organizations for computer scientists and researchers on AI (AAAI, 2023a).

College Minors

Although, learning about IEEE and AAAI programs may be a good way to know how to put into practice what you learn in a computer science bachelor, there are other ways to get the knowledge. As Grand Canyon University states, a minor degree may not only be a good way to stand out to some employers, but also could be a path to compliment knowledge a student has related to their major, but not necessarily. A student may choose to pursue a minor for personal interest, but in any case by doing so the student period at college most likely will increase (Gcu, 2023). However, a student may find a minor is not worth it if whatever they are chasing can be completed in a class or short course. Therefore, the student in question should think of why and how a minor would benefit them.

Student Clubs

As a student at the University of Alaska Anchorage (UAA), extracurricular activities should not be a burden, these can be fun and productive at the same time. For example, joining a student club or organization related to computer science or the field of interest, will result in networking with fellow students and passively enforce the development of soft skills. In UAA there are two clubs that directly relate to computer science. The first one being Robotics Club, which meets every Friday at 5:00 pm hybridly at the Engineering Industry Building or online. (*UAA Robotics*, n.d.). The second student club at UAA is the Computer Science Club, which also meets on Friday at 3:30 pm in the same building. (*Computer Science Club at UAA*, n.d.) Both of these organizations communicate through discord and these are supported by the engineering department at UAA in the form of project proposal, equipment usage, event spaces, and networking with professional staff that can aid projects come to life. These clubs will not only provide experience but also allow students to travel and attend conferences for the students and club's benefit. Therefore, joining these kinds of clubs will be very beneficial and in some cases better than taking a minor.

CS Related Journals

As a computer scientist or someone interested in the field, reading about computer science journals will help to give a wider perspective of what issues are currently being discussed by professionals. One popular journal would be the IEEE Open Journal of the Computer Society (OJ-CS) in which they foster research in various aspects of computing. In addition, OJ-CS is there to provide peer-review support for articles that are related to computing. However, published articles in the journal are difficult to understand by the general public due to the amount of argon used in the articles. Most articles talk about processes that researchers took to make an algorithm more efficient in certain situations, and some will talk about hypotheses to

come to a conclusion with an experiment. Not to mention, some of the tables or images shown relate to certain processes that only experts on the field will understand. Therefore, studying is very important as it would be the pass to understanding these topics or issues being discussed by the scientific community.

Professional Conferences

Another way to get knowledge on computer science topics would be by reviewing and assisting a conference. To know more information about upcoming conferences it is recommended to check any of the organization's websites as these have different conferences. A great example of this is the “2023 IEEE 3rd International Conference on Industrial Electronics for Sustainable Energy Systems (IESES)” scheduled from July 26- 28 with In-person attendance at Shanghai, China (*IEEE Conference Search*, n.d.c). In addition to attending the conference, it’s important to estimate the cost of the trip. If the conference was hybrid there would be virtually no cost except for being a member of one of the societies at IEEE. A student membership will cost \$20.00 whereas a non-student individual will \$106.00. (*IEEE Member Application*, n.d.d). A one-way trip to Shanghai, China varies from \$1981.00 - \$2191.00 at Singapore Airlines (*Singapore Airlines Official Website | Book International Flight Tickets*, n.d.) However, tickets may be more expensive depending on the type of travel and scheduling. A hotel for a week varies from \$274.00 to \$2222.00 (StudentUniverse, 2023). Fortunately in Shanghai there is metro transportation which costs \$0.45 for a ride. (U.S. News & World Report, 2021). The cost of food per day for one individual is 155 yuan or around \$21 USD (Trip, n.d.). For seven days equates to \$147.00. In total a trip for a week to Shanghai, China comes to around \$6751 USD with the most expensive options.

Conclusion / Reflection

While writing this article I learned many things about my major. Ever since I started college at UAA, I have only focused on getting practical knowledge and not understanding how the professional world works in a documentation level as it seemed boring and to be honest it is still a little. However, I found value in reading these articles. These remind me that a major is not only about what you learn, it is about how you use the knowledge to impact society. In other words, it's ok to work smart instead and not hard for the sake of learning, but hard work is what makes a change. Therefore, having strong concepts will be the smartest to ease future projects. That was a direct rewire to my brain, and it is time to start focusing on the big picture to achieve my desired career in CS. On the other hand, so far these writing exercises have improved my vocabulary and awareness of types of writing in the professional world that I have to look for. Sometimes, these are not very clear and having a book written by professionals on the matter has helped me a bunch. To conclude, I feel like all of the material in this course makes me see what professionals in my field are looking for in a newcomer and having that knowledge I may be able to land a job in my field next summer or sooner who knows.

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