Danielle Sousa

CS-499 Computer Science Capstone

Instructor: Professor Kraya

3/24/2025

**Journal Entry: Module 5 Computer Science Trends and Artifact Update**

1. **What is the significance of each trend?**

Two emerging trends in computer science are artificial intelligence and machine learning, as well as augmented and virtual reality. The significance of Artificial Intelligence and machine learning is through automation. AI in automation helps productivity and efficiency. It promotes other innovations such as self-driving cars. It can make user experiences more enjoyable, such as in streaming services like Netflix to Pandora. In industries such as healthcare AI has analyzed large amounts of data to identify patterns in patients to help diagnose and treat illnesses early. (*Top 10 Emerging Trends In Computer Science Engineering*. (2023, October 7).The significance of augmented reality and Virtual reality is that they also make the user’s experience more enjoyable by providing experiences such as in gaming, education, healthcare, and entertainment. It's used in training, especially in the military, when it comes to simulation in a Hummer or Apache helicopter. Remote applications such as virtual meeting apps like Zoom help professionals collaborate at a distance with real-time video. Both of these trends will continue to shape and evolve as new technologies and insights emerge.(*Top 10 Emerging Trends In Computer Science Engineering*. (2023, October 7).

1. **How will each trend change the field of computer science?**

Each trend will change computer science through the development of new algorithms and models for self-learning systems. It will influence industries such as healthcare that rely on a large amount of data to make decisions. Also, there will be ethical and security concerns that come along with these trends and so developers will have to come up with solutions for these concerns as well as how to govern these trends and innovations. AR and VR will change graphics rendering, which will help to improve hardware and the development of advanced VR/AR frameworks. (GeeksforGeeks. (2024, June 24).

1. **How will each trend change the experience of consumers, workers, or citizens?**

The trend will change the experience of consumers by giving personalized experience, such as in streaming services, where users can get recommendations based on their interactions with the app**.** Consumers will get suggestions or frequently interact with chatbots such as Alexa or Siri to gain access to information, music, etc. effortlessly. Consumers can now even order groceries to be delivered to homes by interacting with AI, making everyday chores easy. The impact on workers AI can help to make everyday routines and tasks automated, which can hurt workers and make them displaced. However, on the flip side, AI can help workers in assisting with insight into more difficult tasks and can help identify better solutions. AR/VR can help with shopping experiences that can be done from the comfort of your own home. They can visualize clothes, furniture, etc. Consumers can experience concerts and entertainment that make use of AR apps. Workers can benefit from AR/VR through simulations using these technologies for training purposes. It can help remote workers to do their work from their homes. It can assist in prototyping and product designs. There is so much potential for these technologies, and as computer science evolves, I do not doubt that these won't be far behind.

1. **How will each trend fit in with your career interests or aspirations?**

Each one of these trends will fit in with my interests and aspirations because, at some point in my career, I will rely on AI to help me out of a situation that I may not necessarily have the answer to. Also, AR/VR, I'm sure, will play a factor at some point, especially in training and development, depending on which field I eventually go into.

1. **Which course outcomes have you achieved so far, and which ones remain?**

The course outcomes that I have achieved so far are:

* 1. Design, develop, and deliver professional-quality oral, written, and visual communications that are coherent, technically sound, and appropriately adapted to specific audiences and contexts
  2. Design and evaluate computing solutions that solve a given problem using algorithmic principles and computer science practices and standards appropriate to its solution while managing the trade-offs involved in design choices.

* 1. Demonstrate an ability to use well-founded and innovative techniques, skills, and tools in computing practices for the purpose of implementing computer solutions that deliver value and accomplish industry-specific goals
  2. Develop a security mindset that anticipates adversarial exploits in software architecture and designs to expose potential vulnerabilities, mitigate design flaws, and ensure privacy and enhanced security of data and resources.

The one that remains is to Employ strategies for building collaborative environments that enable diverse audiences to support organizational decision-making in the field of computer science.

**Status Checkpoints for All Categories**

|  |  |  |  |
| --- | --- | --- | --- |
| **Checkpoint** | **Software Design and Engineering** | **Algorithms and Data Structures** | **Databases** |
| **Name of Artifact Used** | CS-360 Events Tracking  App | CS-360 Events Tracking  App | CS-360 Events Tracking App |
| **Status of Initial Enhancement** | Enhancement one is has been completed on 3/23/25 | Enhancement is in progress and is on track for submission by next week 3/30/25. | Enhancement is pending and is on track for submission by next week 4/06/25. |
| **Submission Status** | Has been submitted to receive instructors' comments | Has been submitted, received instructors comments | Planned, but not yet completed |
| **Status of Final Enhancement** | Planned, but not yet completed | Planned, but not yet completed | Planned, but not yet completed |
| **Uploaded to ePortfolio** | Completed upload enhancement one. | Planned, but not yet completed | Planned, but not yet completed |
| **Status of Finalized ePortfolio** | Planned, but not yet completed | Planned, but not yet completed | Planned, but not yet completed. |

**References**

**GeeksforGeeks. (2024, June 24). *Top 9 ethical issues in artificial intelligence*. GeeksforGeeks. https://www.geeksforgeeks.org/top-9-ethical-issues-in-artificial-intelligence/**

**‌**

***Top 10 Emerging Trends In Computer Science Engineering*. (2023, October 7). https://www.bnmit.org/top-ten-emerging-trends-in-computer-science-engineering/**

**‌**