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CS-499

8/10/25

Technology 1: Generative Artificial Intelligence

Generative AI refers to machine learning models capable of creating new content text, images, code, audio, or even 3D objects based on patterns learned from vast datasets. This technology could potentially be useful for my career when it comes to using it as a study tool to help break down and explain complex functions or help with using correct syntax. On the other hand, AI could also restrict my future by replacing humans in a low-level software engineering positions and making it harder to get into mid-level positions. I think it is too early to tell how this technology will affect the world, but I do believe it’s most likely going to be negative.

Technology 2: Quantum Computing

Quantum computing uses principles of quantum mechanics superposition, entanglement, and quantum interference to perform computations far beyond the capacity of classical computers for certain tasks. Rather than using bits, quantum computers use qubits making them much faster than a normal computer. Quantum computing would drastically change society and cause breakthroughs in all aspects of science and technology. When paired with AI it is hard to say what could be possible when we achieve this technology, but it will forever change our future as a species.

So far in CS-499, I have strengthened my skills in designing secure, value-driven computing solutions, applying innovative tools, and communicating technical concepts effectively. Remaining goals include refining collaboration in diverse teams, enhancing oral and visual communication, and balancing trade-offs in solution design.

For my CS-499 ePortfolio, I am using SceneManager.cpp for Software Design and Engineering, the DAD Final Project for Algorithms and Data Structures, and AnimalShelter.py for Databases. All artifacts have been enhanced, submitted, and finalized, and they will be uploaded to my ePortfolio to showcase my growth in technical skills, problem-solving, and secure coding practices across all categories.

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| **Checkpoint** | Software Design and Engineering | Algorithms and Data Structures | Databases |
| Name of Artifact Used | SceneManager.cpp | DAD Final Project | AnimalShelter.py |
| Status of Initial Enhancement | Completed | Completed | Completed |
| Submission Status | Submitted | Submitted | Submitted |
| Status of Final Enhancement | Completed | Completed | Completed |
| Uploaded to ePortfolio | yes | yes | yes |
| Status of Finalized ePortfolio | Not done | Not done | Not done |