**6-1 Journal: Emerging Technology and Artifact Update**

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CS-499: Computer Science Capstone

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1. **What is the identification and description of each technology?**  
   Autonomous vehicles replace physical drivers with technology to safely navigate to a specified destination (Garsten, 2024). The technology uses radar, cameras, and laser-based light detection and ranging (LiDar) (Garsten, 2024). Quantum computing is an emerging field that has the potential to outperform supercomputers in problem solving (Schneider & Smalley, 2025). In quantum computing, quantum bits, or qubits, are used to process and store information, which is different from the binary bits used in classical computing (Schneider & Smalley, 2025).
2. **What are the likely impacts on computer science or your career?**  
   Autonomous vehicles require software, algorithms, and machine learning to function, all of which are aspects of computer science (Garsten, 2024). They will require experts on the computer science field to develop and maintain the technology used in autonomous vehicles. Quantum computing is still in development but can disrupt the computer science field (Schneider & Smalley, 2025). Quantum computing has many applications, with one of them being machine learning, where the algorithms can be greatly improved (Dargan, 2023).
3. **How might the two technologies impact humans, communities, or the world?**Autonomous vehicles could reduce traffic and car accidents by removing the human driver who is susceptible to distractions (Garsten, 2024). There are, of course, safety concerns and limitations with autonomous vehicles that need to be addressed, but the potential is there to change personal transportation for the better (Rose, 2025). Quantum computing can redefine how real-world problems are solved (Dargan, 2023). Very complex problems that could never be solved by classic computers would become solvable using quantum computers (Schneider & Smalley, 2025). Finance, engineering, and global shipping fields can all benefit from quantum computing (Schneider & Smalley, 2025).
4. **Which course outcomes have you achieved so far, and which ones remain?**  
   All course outcomes have been achieved.

**Status Checkpoints**

| **Checkpoint** | **Software Design and Engineering** | **Algorithms and Data Structures** | **Databases** |
| --- | --- | --- | --- |
| **Name of Artifact Used** | **Artifact name:** Project 2 Dashboard  **Origin:** CS-340 Client Server Development | **Artifact name:** Project 2 Dashboard  **Origin:** CS-340 Client Server Development | **Artifact name:** Project 2 Dashboard  **Origin:** CS340 Client Server Development |
| **Status of Initial Enhancement** | Enhancement completed. | Enhancement completed. | Enhancement completed |
| **Submission Status** | Submitted to Brightspace. | Submitted to Brightspace. | Submitted to Brightspace. |
| **Status of Final Enhancement** | Pending integration of feedback. | Pending integration of feedback. | Pending integration of feedback. |
| **Uploaded to ePortfolio** | Planned but not completed yet. | Planned but not completed yet. | Planned but not completed yet. |
| **Status of Finalized ePortfolio** | Planned but not completed yet. | Planned but not completed yet. | Planned but not completed yet. |

References

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Insider. <https://thequantuminsider.com/2023/05/24/quantum-computing->

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Garsten, E. 2024. *What Are Self-Driving Cars? The Technology Explained*. Forbes.

<https://www.forbes.com/sites/technology/article/self-driving-cars/>

Rose, I. 2025. *The Slow but Steady Advance of Driverless Vehicles*. BBC.

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Schneider, J. & Smalley, I. 2024. *What is Quantum Computing?* IBM.

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