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Southern New Hampshire University

CS-499 Computer Science Capstone

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Module 5 Journal: Computer Science Trends and Artifact Update

Part One: Emerging Computer Science Trends

For this journal, I chose Artificial Intelligence and Machine Learning and Cloud Computing because they are the two trends I see most often in both the industry and my future career. These trends are important because they are shaping almost every part of how technology solves real problems. Artificial intelligence brings automation, pattern recognition, and decision support into systems, which makes technology faster and more adaptive. Cloud computing is significant because it changes how applications are hosted, scaled, and secured. It allows organizations and developers to build systems without relying entirely on physical hardware, which improves reliability and performance.

These trends continue to change the field of computer science by pushing developers toward distributed systems, automation, and data-driven applications. Artificial intelligence encourages developers to think more deeply about algorithms, model training, bias, and ethical design. Cloud computing changes how we build systems by making containers, load balancing, and serverless computing standard industry practices. For consumers and workers, these trends

improve user experience because applications become faster, more personalized, and always available. Cloud-based systems also provide more effective data protection and enable people to work from anywhere.

Both trends fit well with my long-term career interest in information security. Artificial intelligence helps me understand how to detect anomalies, predict threats, and support secure automation. Cloud computing supports my future goals because almost every secure system today is hosted in a cloud environment, so I need to understand secure cloud design, identity management, and data protection. As I progress in this course, I have completed Outcomes Four and Five through my enhancements in software engineering and secure design. I also achieved Outcome Three through my work in algorithms for the Deep Q Learning enhancement. The last outcome I am working toward is demonstrating more skills in secure database management in my CS 360 mobile app artifact.

Part Two:

Status Checkpoints for All Categories

Checkpoint	**Software Design and Engineering**	**Algorithms and Data Structures**	**Databases**
Name of Artifact Used	Travlr Getaways Full-Stack Web Application (CS-465)	Deep Q-Learning Cartpole Project (CS-370)	Amos Weight Tracking App (CS-360)

Status of Initial Enhancement	Completed. Added full JWT authentication, RESTful CRUD routes, Angular interceptors, improved service architecture, and UI enhancements.	Completed. Includes improved epsilon logic, replay memory scheduling, and algorithmic documentation.	Enhancement plan approved. Cloud sync, encryption, and UI updates are scheduled for this module.
Submission Status	Submitted and accepted for Milestone Two.	Submitted, and instructor feedback confirmed all requirements were met.	Will be submitted for Milestone Five.
Status of Final Enhancement	The final version is complete and polished.	Final version submitted and uploaded to ePortfolio.	Final enhancement in progress.
Uploaded to ePortfolio	Yes, uploaded after positive feedback.	Yes, uploaded after positive feedback.	Not yet. Will upload after feedback.
Status of Finalized ePortfolio	In progress.	In progress.	In progress.

References:

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