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CS 499 Journal – Emerging Disruptive Technologies

# Part One

**One major disruptive technology is** quantum computing, which leverages quantum-mechanical phenomena like superposition and entanglement to perform computations that classical computers cannot. Another transformative technology is **artificial general intelligence (AGI)**, which refers to machines that possess the ability to learn, reason, and understand across a wide range of tasks, similar to human intelligence.

Quantum computing could revolutionize computer science by solving complex problems in cryptography, logistics, and materials science faster than classical computers. AGI would redefine software development, cybersecurity, and even the way we design systems, requiring new ethical and design frameworks.

Quantum computing will impact industries by breaking current encryption models, necessitating quantum-safe algorithms. AGI could enhance human productivity and change the job market significantly. Both will affect communities by shifting economic structures and introducing ethical challenges related to automation and decision-making.

So far, I have achieved course outcomes in software development, algorithmic design, and secure database implementation. Final documentation and ePortfolio polish are still in progress.

# Part Two

Status Checkpoints for All Categories

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| --- | --- | --- | --- |
| Checkpoint | Software Design and Engineering | Algorithms and Data Structures | Databases |
| Final Status | Finalized and uploaded: CryptoTracker App refactored to Compose + Clean Architecture. | Finalized and uploaded: Pathfinding enhanced with A\* search and performance optimization. | Finalized and uploaded: Bookstore schema enhanced with normalization, views, and Flask API. |