Nathan Kintu

CS 499 6-1 Journal

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**Identification and Description of AI and Robotics:**

Artificial Intelligence (AI) serves as a field of computer science that focuses on the creation of machines capable of intelligent behavior. These machines are designed to mimic human cognitive functions like learning, reasoning, problem-solving, and decision-making. AI systems can process vast amounts of data, recognize patterns, and make predictions or decisions based on the information gathered. This technology is constantly evolving, with applications ranging from virtual assistants like Siri to complex autonomous vehicles and advanced medical diagnosis tools.

Robotics, on the other hand, involves the design, construction, operation, and use of robots. These robots are autonomous or semi-autonomous machines programmed to perform specific tasks or functions. They can range from industrial arms used in manufacturing processes to humanoid robots designed for social interactions or hazardous environments. Robotics merges principles of mechanical engineering, electrical engineering, and computer science to create systems capable of interacting with their environment and completing assigned tasks with precision.

**Impact of AI and Robotics on Humans, Communities, and the World:**

The integration of AI and robotics into various aspects of society presents both opportunities and challenges. These technologies have the potential to revolutionize industries by enhancing efficiency, productivity, and accuracy in tasks that range from mundane to complex. AI-powered systems can revolutionize healthcare by enabling precise diagnostics, personalized treatments, and even robotic-assisted surgeries, ultimately improving patient outcomes and quality of care.

On a broader scale, the widespread adoption of AI and robotics could transform transportation with self-driving vehicles, agriculture with automated farming practices, and logistics with efficient supply chain management. However, concerns exist regarding the impact on the workforce, as automation may lead to job displacement and require reskilling of the workforce to adapt to new roles in the digital age.

Additionally, ethical considerations surrounding AI and robotics are critical. Issues such as data privacy, algorithmic bias, accountability for autonomous decisions, and the potential misuse of AI in autonomous weapons systems must be carefully addressed to ensure these technologies are developed and utilized responsibly.

In conclusion, while AI and robotics offer immense potential for innovation and progress, their societal impact must be carefully managed to maximize benefits while addressing the challenges that come with increased automation and artificial intelligence integration.

**Status Checkpoints for All Categories**

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| --- | --- | --- | --- |
| Checkpoint | Software Design and Engineering | Algorithms and Data Structures | Databases |
| Name of Artifact Used | I utilized Software Design and Engineering to develop both the GUI and the functionality of the code. | Algorithms and Data Structures were created to assist in generating data based on user input for interacting with models to predict parameter values. | The database was primarily utilized for storing user information. The user authentication data can be created, read, updated, and deleted. |
| Status of Initial Enhancement | The primary user interface has been created and integrated with the functional code. | The algorithms required for the application have been created and integrated with the GUI to enable user interaction. | The database code management has been created to handle user authentication for accessing the application. |
| Submission Status | I have uploaded information about this artifact to the ePortfolio, created repositories for storing code, and added a link in the ePortfolio for easy access to the artifact's corresponding code. | I have uploaded information about this artifact to the ePortfolio, created repositories for storing code, and added a link in the ePortfolio for easy access to the artifact's corresponding code. | I have uploaded information about this artifact to the ePortfolio, created repositories for storing code, and added a link in the ePortfolio for easy access to the artifact's corresponding code. |
| Status of Final Enhancement | I have integrated user authentication into the app so that the authentication page appears first when the desktop icon is clicked. | The final improvement aims to check if the created data structure has reliable parameters. | The authentication page is complete and is now waiting for the final app GUI size adjustment to match the window size. |
| Uploaded to ePortfolio | No content has been uploaded yet | No content has been uploaded yet | No content has been uploaded yet |
| Status of Finalized ePortfolio | The ePortfolio has been designed and is ready for content upload. | The ePortfolio has been designed and is ready for content upload. | The ePortfolio has been designed and is ready for content upload. |