Module 1 – Introduction to Computer Vision - Overview

The presentation "Introduction to Computer Vision" for ITAI 1378 Module 1 provides a comprehensive overview of computer vision. It covers the history, key concepts, technologies, and applications of computer vision. Key topics include the evolution of photography and digital imaging, advancements in hardware, the integration of AI and machine learning in computer vision, and notable tools and technologies used in the field. I have learned the following from this module:

**Introduction to Computer Vision:**

* Definition and basic concepts of computer vision.
* Historical development and key enablers (photography, digital imaging, computational power).

**Computer Vision Technologies:**

* Evolution of cameras and sensors.
* Impact of GPU advancements on real-time 3D rendering and computer graphics.
* Role of algorithms and machine learning in enhancing image recognition capabilities.

**Applications of Computer Vision:**

* Uses in autonomous driving, healthcare, agriculture, and smart cities.
* Application in space exploration and microscopic imaging.

**Tools and Technologies:**

* Generative AI tools like DALL-E, Midjourney, and Stable Diffusion for image and video generation.
* Use of YOLO for real-time object detection.
* OpenCV for image processing tasks.

**Practical Implications and Key Learnings:**

* Importance of parameter tuning and robust data preprocessing.
* Addressing challenges like overfitting and noise in data.
* Integration of AI with computer vision for enhanced capabilities and efficiency.