Name:_____

Unit 3 – Graphics and Vision ~ Learning Guide

INSTRUCTIONS: Complete the following notes and questions as you work through the related lessons. You are required to have this completed BEFORE you write your unit test.

Section 3.1 – Graphical User Interfaces

Lesson A – Terms for 3.1

Look for these terms as you work through this section. Some will appear on the unit test.

- GUI
- dialogue box
- toolbar
- WIMP interface
- widget
- WYSIWYG

Lesson B – What is a GUI?

Why were GUIs such a breakthrough in bringing computers to casual users? In your response, be sure to list some of the elements of GUIs described in this lesson.

Lesson C – Crash Course Graphic User Interfaces

Explain how, according to the video, GUIs make computers more "intuitive" by using elements which feel more familiar to users.

Section 3.2 Screens and 2D Graphics

Lesson A – Terms for 3.2

Look for these terms as you work through this section.

- CRT
- LCD
- 2D graphics
- monitor
- vector graphics
- terminal devices
- cctv monitors
- electromechanical
- phosphor
- dot matrix
- CAD

Lesson B – A History of Computer Monitors

Explain some of the technical advances which allowed computer outputs to develop from "lights on a control panel" to the LCD displays available today.

Lesson C - Crash Course - Screens and 2D Graphics

Why did early computers only display text?

Explain the relationship between increases in RAM capacity and the development of computer graphics.

Section 3.3 - 3D Graphics

Lesson A – Terms for 3.3

Look for these terms as you work through this section.

- bluetooth
- coordinate geometry
- matrix mathematics
- CAD
- wireframe rendering
- orthographic projection
- mesh
- scanline rendering
- anti-aliasing
- occlusion
- Z-buffering
- GPU

Lesson B – Evolution of Digital Technology

Choose three or four of the developments in the evolution of digital technology shown here, then list them below, explaining why you find each significant.

Lesson C – History of 3D Modeling

In what ways is 3D modeling "taking over the world today"?

Lesson D – Crash Course - 3D Graphics

What is wireframe rendering and what does it have to do with computer graphics?

What is scanline rendering and how does it differ from wireframe rendering?

Section 3.4 - Computer Vision

Lesson A – Terms for 3.4

Look for these terms as you work through this section.

- AI (artificial intelligence)
- visual cortex
- deep learning
- convolutional neural networks
- iterations
- optical character recognition
- intelligent character recognition
- biometrics
- grayscale

Lesson B – What is Computer Vision?

What is computer vision and how does it work?

What is machine learning and how does it fit in here?

Lesson C – Crash Course – Computer Vision

What does it mean for a computer to be able to see rather than merely take pictures?

What are some of the hurdles faced by computer scientists when it comes to realizing computer vision?

To what degree has computer vision been realized today?