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| **Practicum Case** |  |
| COMP7116 | COMP7116001 | COMP7116016 | MATH6168 | MATH6168016  Computer Vision |
| **Computer Science** | **O221-COMP7116-NC01-04** |
| ***Valid on*** *Odd Semester 2024/2025* | **Revision 00** |

**Learning Outcome**

* LO1 – Describe various computational principles and standard image processing operators in computer vision

**Topic**

* Session 4 – Edge Detection

## Sub Topics

* Canny
* Sobel
* Laplace
* Edge Visualization

## Soal

*Case*

**SeNaCony**

Recently, a very popular game just released a new map called SeNaCony which brings all kinds of people to try out the new map. Currently, the developers are having difficulties in advertising the new map using their official artworks and felt like the **artworks needs some adjustments**, which leads to them asking for your help to **make a progra**m **using Python for Edge Detection**. This program can help them **identify what can be improved** from the artwork, such as the **brightness of the artwork** changing sharply, and can also **enhance the artwork**.

1. **Canny**

* **Make a program** that can perform **edge detection** using the **Canny** algorithm.

A black and white image of a cartoon

Description automatically generated

Figure 1. Example of Edge Detection using Canny

1. **Sobel**

* **Make a program** that can perform **edge detection** using the **Sobel** algorithm for both horizontal and vertical directions to the greyscale image.

A grey rectangular object with text

Description automatically generated with medium confidence

Figure 2. Example of Edge Detection using Sobel (Horizontal)

A grey rectangular object with numbers

Description automatically generated with medium confidence

Figure 3. Example of Edge Detection using Sobel (Vertical)

1. **Laplace**

* **Make a program** that can perform **edge detection** using the **Laplace** algorithm.

A graph of a number of numbers

Description automatically generated with medium confidence

Figure 4. Example of Edge Detection using Laplace