**Convolutional Neural Network (CNN)**

**and Game Development**

**Install packages before starting**

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* pip install tensorflow
* pip install keras
* pip install h5py
* pip install Matplotlib
* pip install numpy

1. **CNN – Improve accuracy (Done in Google Colab)**

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* Import TensorFlow

A screenshot of a computer

Description automatically generated with medium confidence

* Download and prepare the CIFAR10 dataset.

Graphical user interface, text, application

Description automatically generated

* Verify the data, plot the first 25 images from the training set, and display the class name below each image

Text

Description automatically generated

* Result

A picture containing different, old, various

Description automatically generated

* Create the convolutional base

Background pattern

Description automatically generated with medium confidence

* Add Dense layers on top

A picture containing chart

Description automatically generated

* Compile and train model

Graphical user interface, text

Description automatically generated

* Result of last five epochs

A picture containing text

Description automatically generated

* Evaluate the model

Text

Description automatically generated

* Result

Graphical user interface, application

Description automatically generated

* Show the test accuracy and result

Graphical user interface, text, application

Description automatically generated

* Save trained model in file "*hung\_CIFARmodel.h5*"



1. **CNN – Challenge Test**

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* Turn certificate verification off

Text

Description automatically generated

* Import libraries

Text

Description automatically generated

* Load and reshape the images

Text

Description automatically generated

* Get the picture from the internet

Text

Description automatically generated

* Load the trained CIFAR10 model

Text

Description automatically generated

* Show the test picture from internet and prediction result.

Text

Description automatically generated

* Result

A cat lying down

Description automatically generated with medium confidence

1. **Game Development: Balloon Flight**

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* Import libraries

Text

Description automatically generated

* Define the size of the game window

Text

Description automatically generated with medium confidence

* Create new actors

Text

Description automatically generated

* Background music

Text

Description automatically generated

* Prepare the obstacles

Text

Description automatically generated

* Create global variables

Text

Description automatically generated

* Manage the high scores

Text

Description automatically generated

* Create the draw() function

Text

Description automatically generated

* Reacting to mouse clicks

Text

Description automatically generated

* Make the bird flap

A picture containing text

Description automatically generated

* Move the bird

Text

Description automatically generated

* Handle the bird flying off the screen

Text

Description automatically generated

* Move the house

Text

Description automatically generated

* Move the tree

Text

Description automatically generated

* Keep it steady

Graphical user interface, application

Description automatically generated

* Handle collisions with obstacles

Text

Description automatically generated

* level up

A screenshot of a computer

Description automatically generated with medium confidence

* Result

A screenshot of a computer

Description automatically generated with low confidence