



# NTUT Pothole Game

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# Version History

- v0.1 (2021/2/1)
  - 連續產生不同材質路面與不同真實深度坑洞
  - 遊戲式環境可進行強化學習, 總分**100**, 遇到坑洞扣一分, 偏離道路遊戲結束
- v0.2 (2021/4/25)
  - 增加裂縫貼圖以提升辨識困難度
- v0.3 (TBD)
  - 增加危險坑洞與大型裂縫, 不同程度坑度扣分程度不同

# Software Features

產生具有真實深度的坑洞

連續產生不同材質路面與坑洞

遊戲式環境可進行強化學習

- 總分100, 遇到坑洞扣一分
- 偏離道路Game Over

結合Microsoft AirSim

- 透過Python API控制車輛
- 切換Camera視角
- 抓取環境影像和深度圖
- 模擬天氣狀況(雨, 雪, 霧,...)
- Lidar訊號模擬



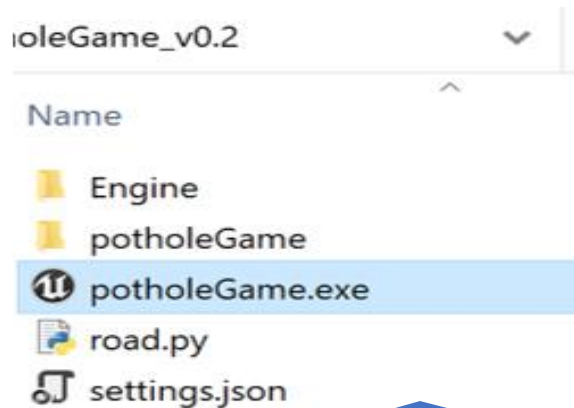
The background of the slide is a photograph of a city street at dusk or dawn. The street is empty, with a road sign in the foreground. On the right side of the street, there is a row of multi-story brick buildings with many windows, some of which are lit up. The sky is a pale, hazy blue. A large, white, diamond-shaped graphic is superimposed over the center of the image. Inside this diamond, the text "Generate Lidar Data & Show in RTOS" is written in a clean, black, sans-serif font. Below this, in a smaller font, is the text "Showing lidar data with different camera angles". The bottom right corner of the slide features a dark, textured area with a grid of small white dots, representing a point cloud or lidar data visualization.

# Generate Lidar Data & Show in RTOS

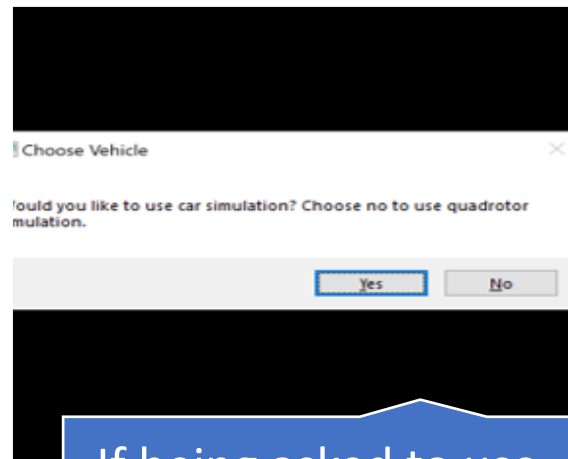
Showing lidar data with  
different camera angles

# Playing the Game

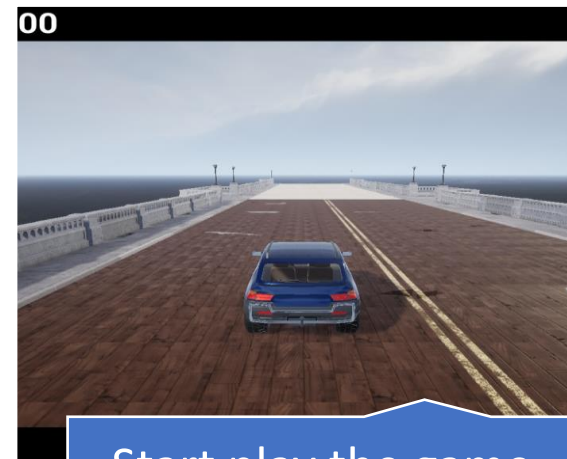
- Windows: Click the Pothole



Run  
potholeGame.exe



If being asked to use  
car simulate, click Yes



Start play the game  
use WSAD



F1 for more functions

# F1 for Help

- For more functions, please visit AirSim <https://microsoft.github.io/AirSim/>

