HW1 Report

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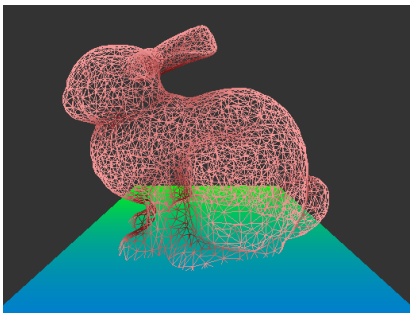
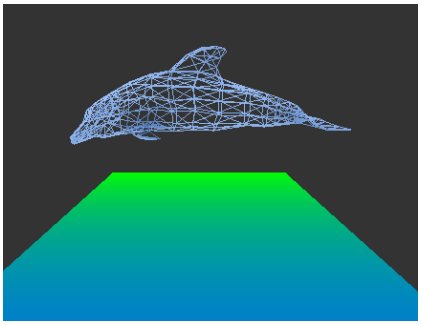
- Translate / Scale / RotateXYZ :
  - 依照transformation的講義設定矩陣
  - 分別填入位移&scale, rotate要分xyz軸
- ViewingMatrix / ProjectionMatrix / Orthogonal / Perspective :
  - 依照transformation的講義分別更改
    - view_matrix
    - project_matrix
  -
- ChangeSize : 避免調整視窗大小時變形
  - 依據最前面變數的順序及正負 (left, right, top, bottom) = (-1,1,1,-1)
  - 先判斷視窗width跟height大小來決定要縮小哪一邊
    - W > H = 縮小W
    - W < H = 縮小H
  - 一開始後面沒有+ setOrthogonal / setPespective, 更改後不會隨之改變
  - 因為此function input W,H = int, 整數型態, 一開始沒有加float
    - 變成如果大小不是縮放整數倍, 還是會變形
    - 設為float才會成功調整不變形
    - float (w) / h : 不能整個float, 不然還是一樣int / int
- Key / Mouse / Scroll
  - 依照講義要求設定
  - 有調了一些和助教demo不一樣的方向, 因為覺得**viewup**的轉向要順著滑鼠比較合理, 所以是和助教相反的。
  - Press "W":
    - 原本直接在keypress那邊直接改成GL_LINE, 但會讓平面也一起變成wire
    - 後來發現助教code中有isDrawWireframe, 所以用布林來控制wire, 在render中畫object的drawarray之前以此來決定要不要設定成GL_LINE
    - 然後在drawplane中直接預設為GL_FILL
  - 其他的就有依據滑鼠及移動速度調整參數大小（多為0.001), 太快會太靈敏亂跑
- Plane的部份 :
  - 一開始Plane會一起跟著轉動跟變成WIRE, 後面將mvp少乘s*r*t就好。
  - 新增一個全域變數plane來畫平面

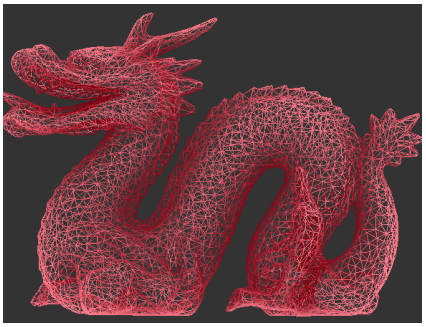
w:



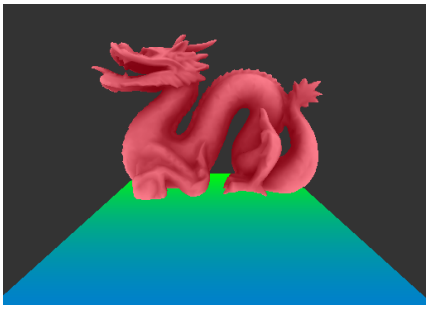
z/x:



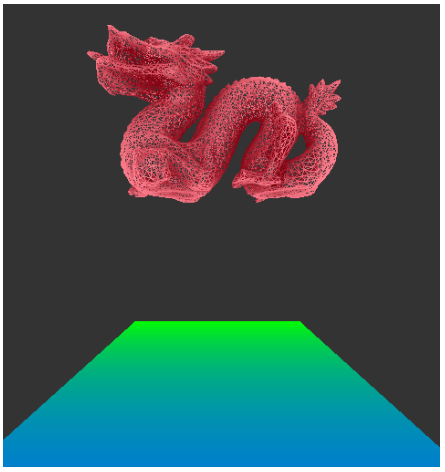
o:



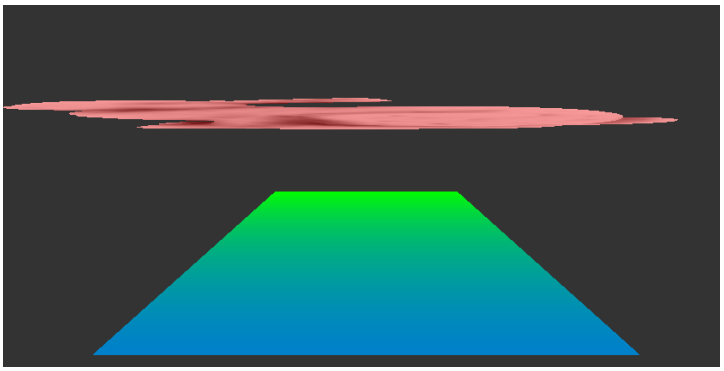
p:



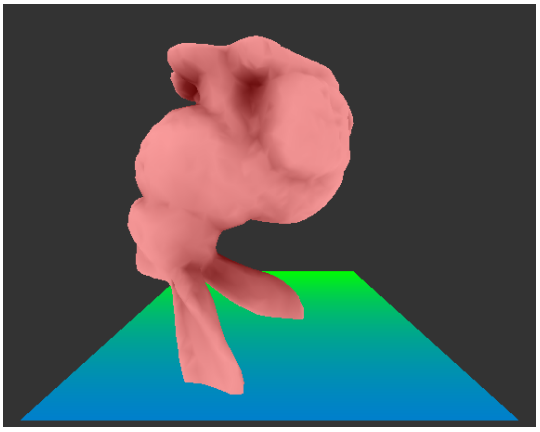
t :



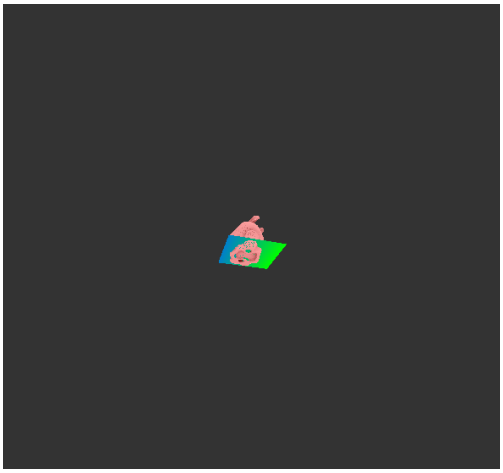
s:



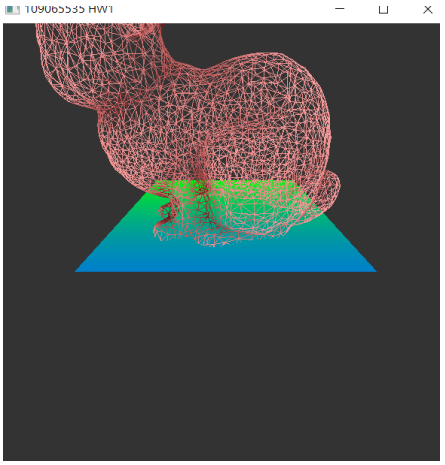
r:



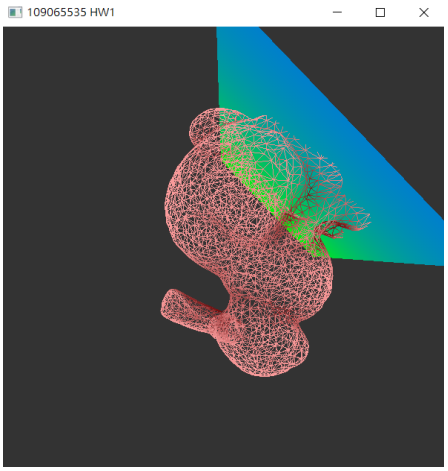
e:



c:



u: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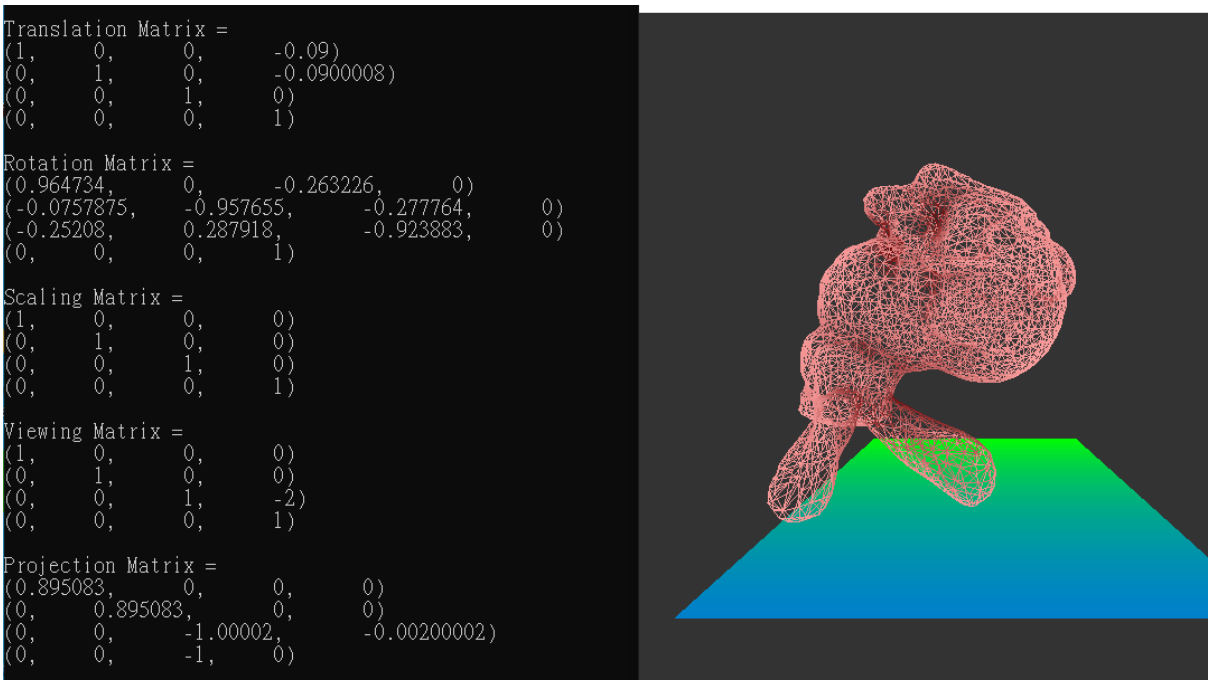
i:


Translation Matrix =
(1, 0, 0, -0.09)
(0, 1, 0, -0.0900008)
(0, 0, 1, 0)
(0, 0, 0, 1)
Rotation Matrix =
(0.964734, 0, -0.263226, 0)
(-0.0757875, -0.957655, -0.277764, 0)
(-0.25208, 0.287918, -0.923883, 0)
(0, 0, 0, 1)
Scaling Matrix =
(1, 0, 0, 0)
(0, 1, 0, 0)
(0, 0, 1, 0)
(0, 0, 0, 1)
Viewing Matrix =
(1, 0, 0, 0)
(0, 1, 0, 0)
(0, 0, 1, -2)
(0, 0, 0, 1)
Projection Matrix =
(0.895083, 0, 0, 0)
(0, 0.895083, 0, 0)
(0, 0, -1.00002, -0.00200002)
(0, 0, -1, 0)