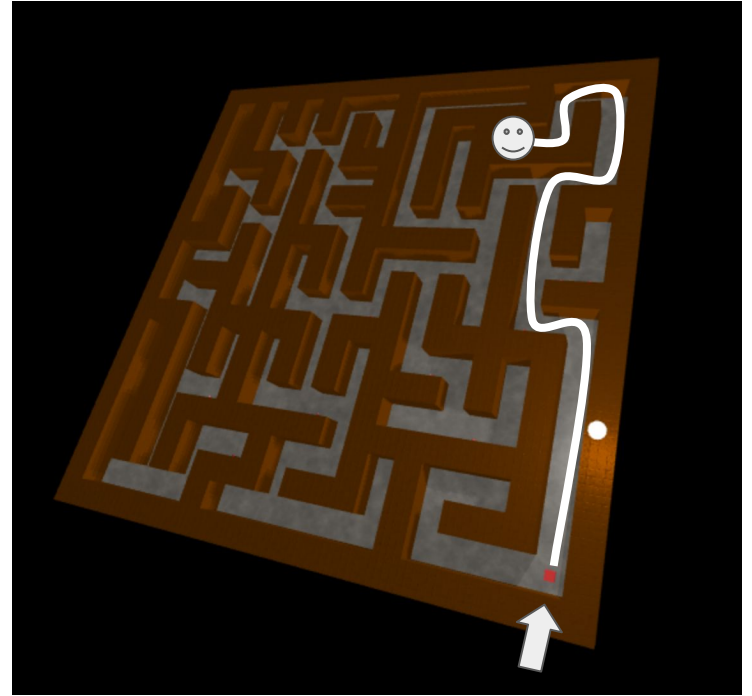


Labyrinth (Team 20)

Ruoyu He, Tingfeng Xia, Yu Zuo, Xiaxuan Gao

Introduction

- First-person 3d maze solving game
 - Navigate the maze and find the treasure box!
 - Hint: the treasure box will jump over the wall
- Three advanced features
 - Shadows
 - Normal Map
 - Collision detection



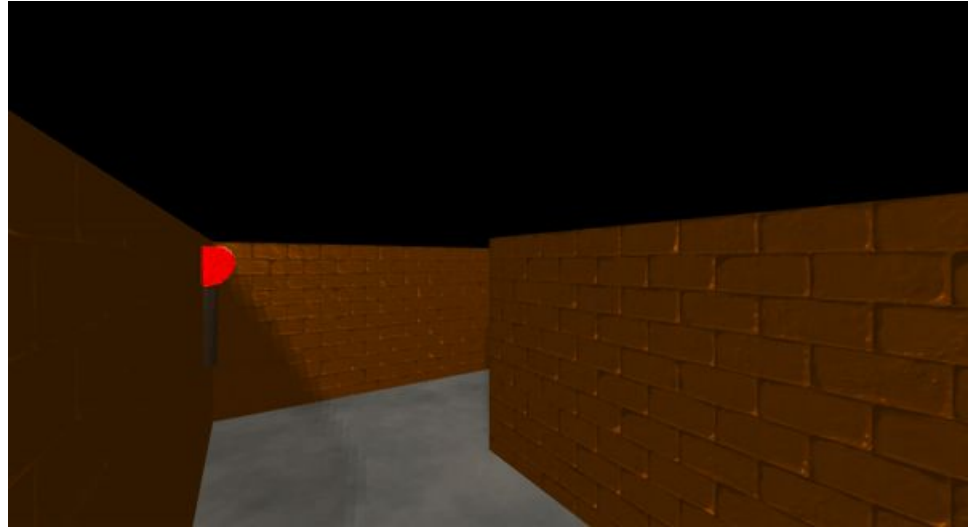
Shadows

- 2-pass z-buffer method
- Real time shadow computation (see demo)
- Different shaders for floor and walls (shader for walls combines shadow computation and normal map, see next slide)

(reference:

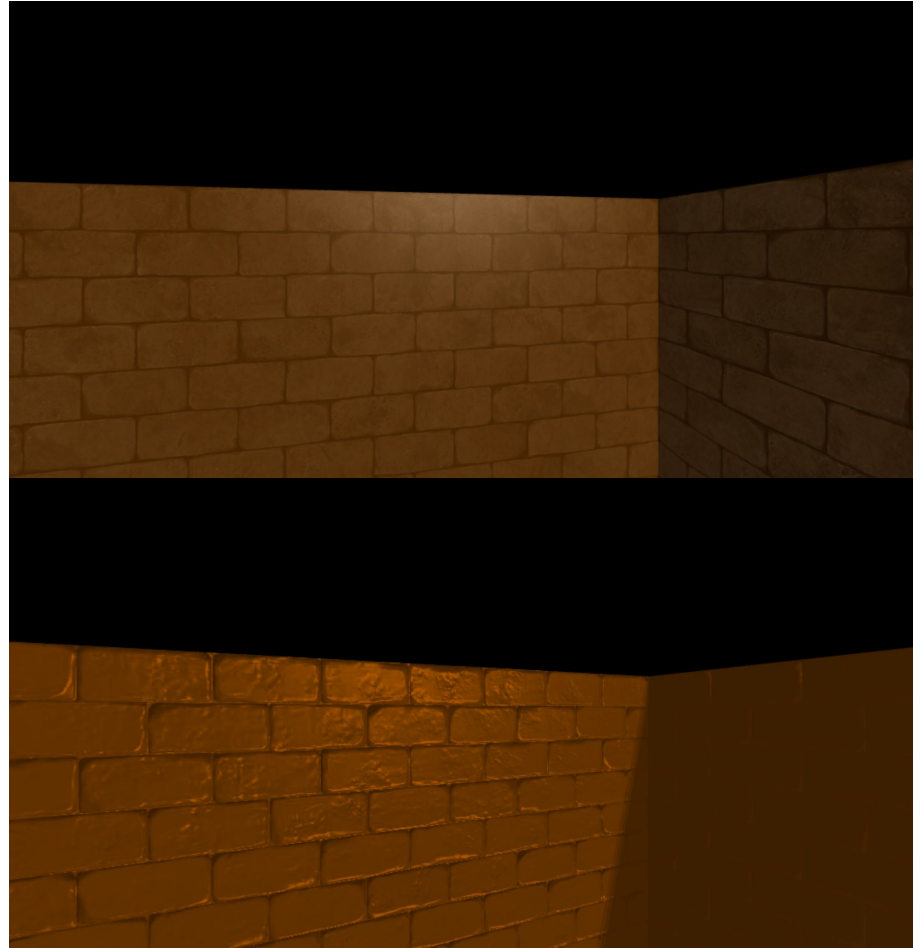
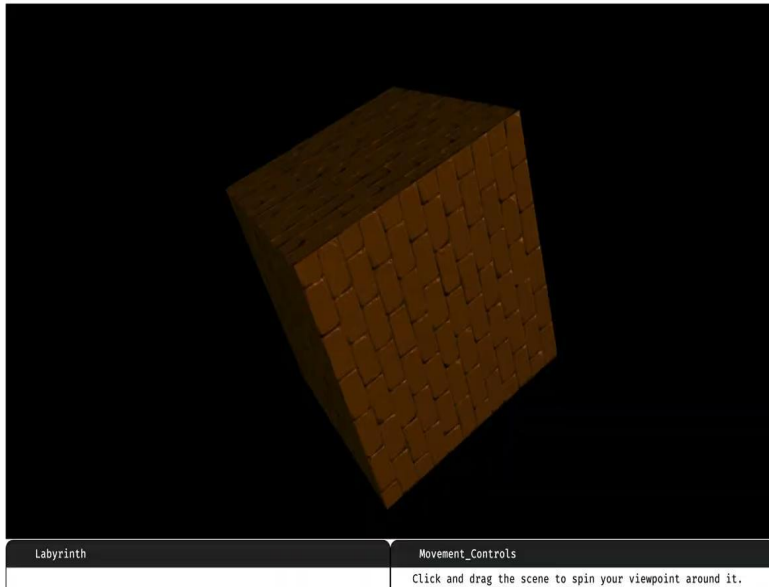
https://github.com/Robert-Lu/tiny-graphics-shadow_demo

)



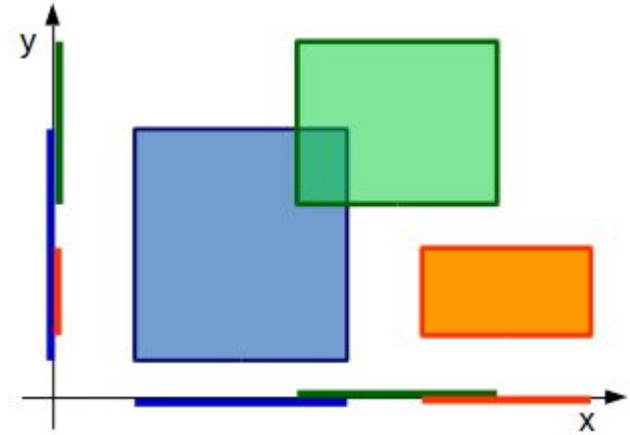
Normal Maps

- Added visual bumpiness



Movement / Collision Detection

- Collision Detection on 2D X-Z plane
- Used ...
 - Verify winning (found loot box)
 - Collision with wall



Demo time!

Contributions

- Tingfeng: Normal map texture
- Yu: Shadows
- Xiaxuan: Collision detection
- Ruoyu: Movement control + decorations