



# Moteur de Lancé de Rayons

Projet du Module INFSI 350

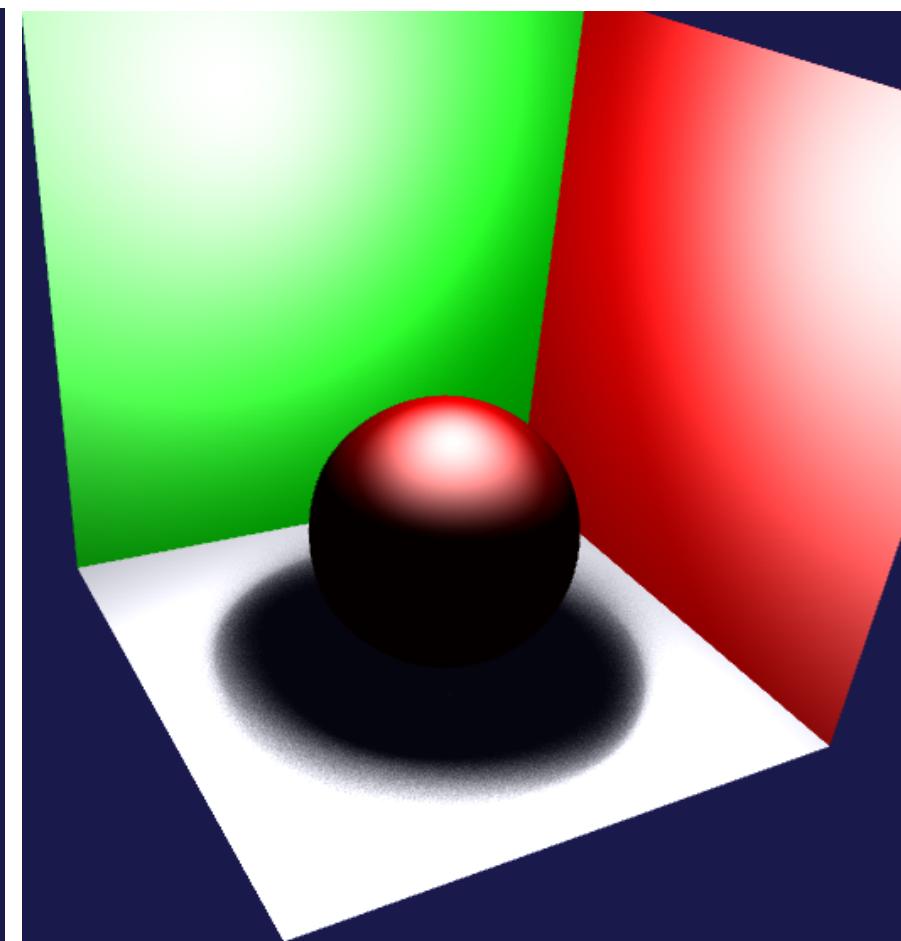
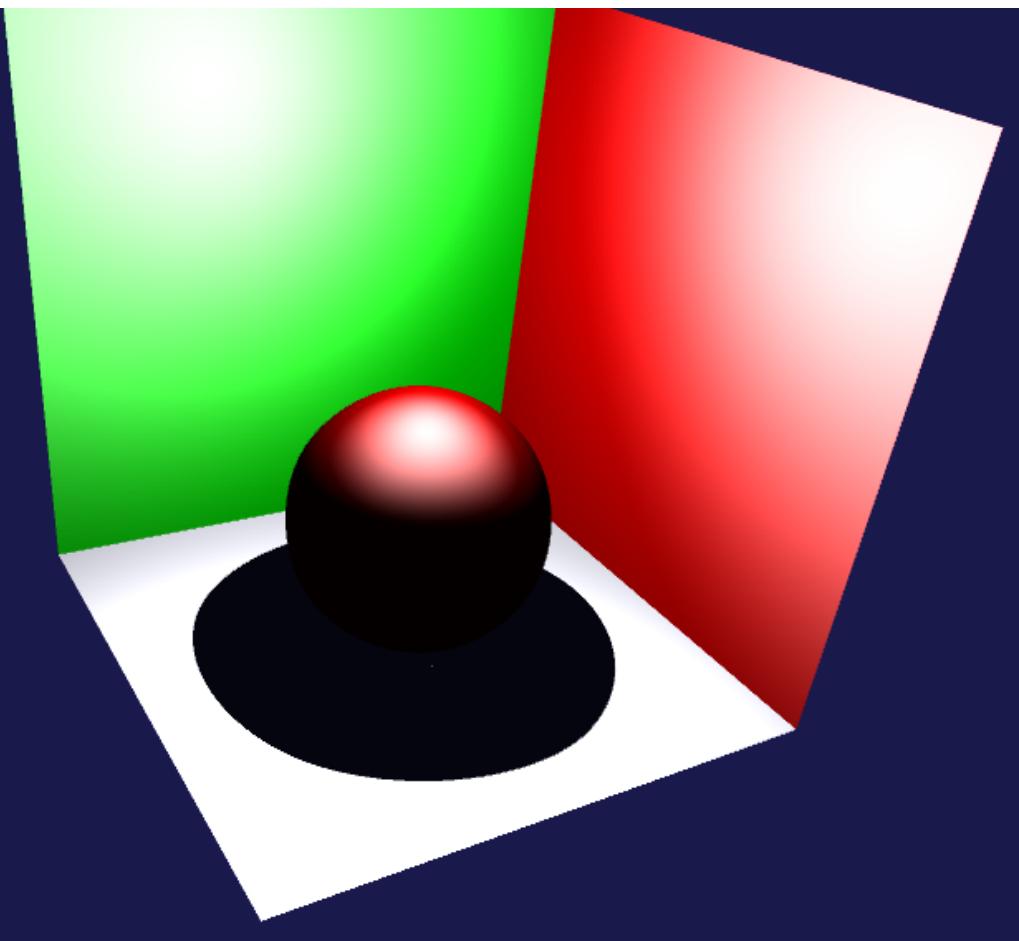
2012

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# Description du moteur

- Antialiasing (uniforme, polygone, stochastique)
- Texture par le bruit
- Ombre dure et douce (multi lumières)
- Ambient occlusion
- Miroir, glossy surfaces, verre (réfraction)
- Path tracing, Point Based Global Illumination
- Effet de focale
- Flou de mouvement
- Skybox
- Temps réel (CPU)

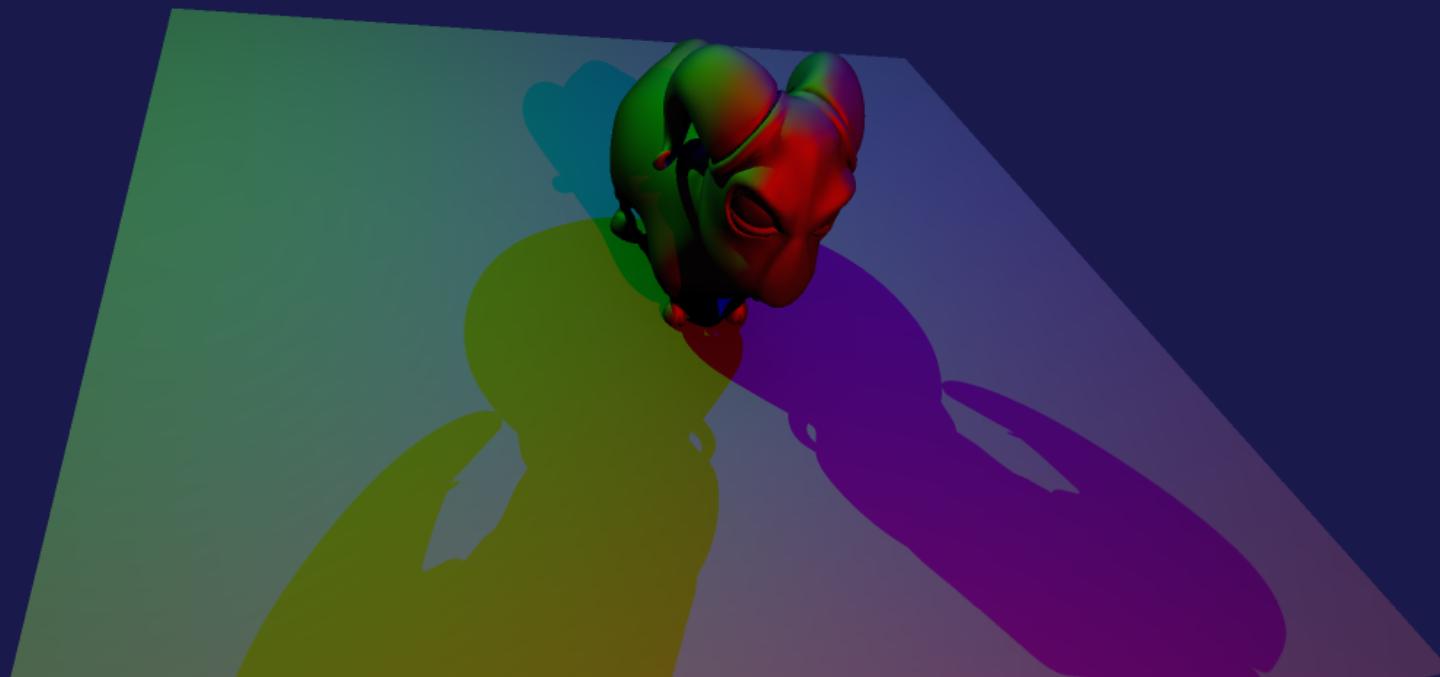
# Ombre dure & douce



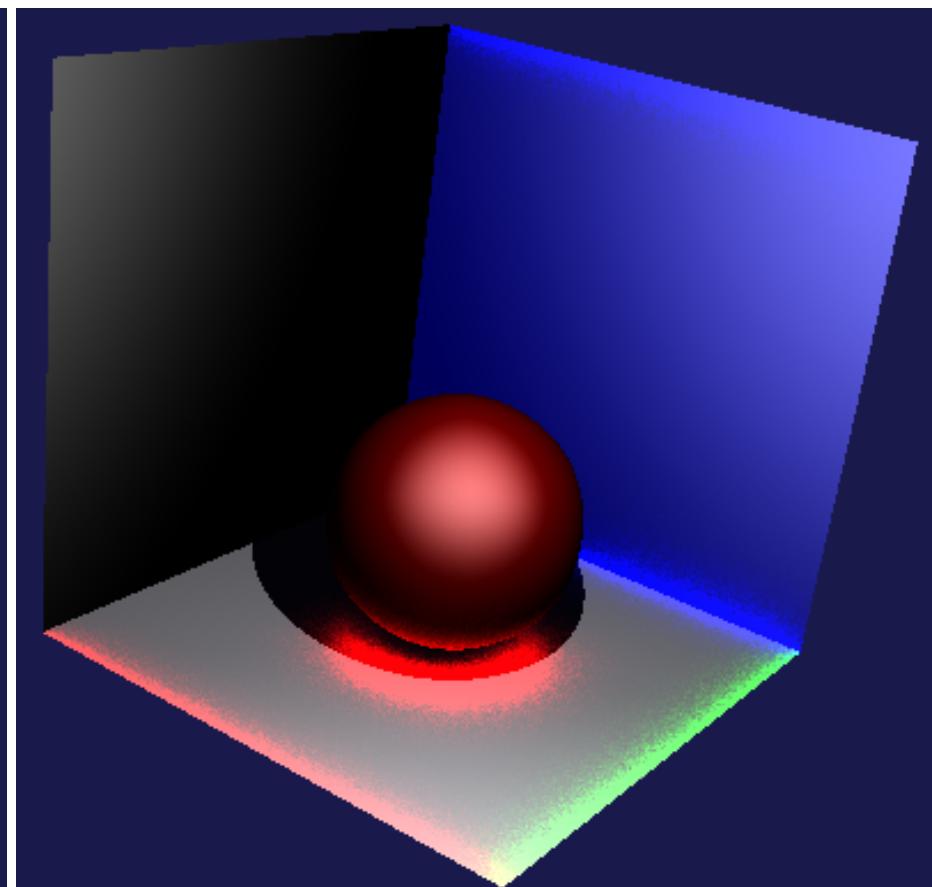
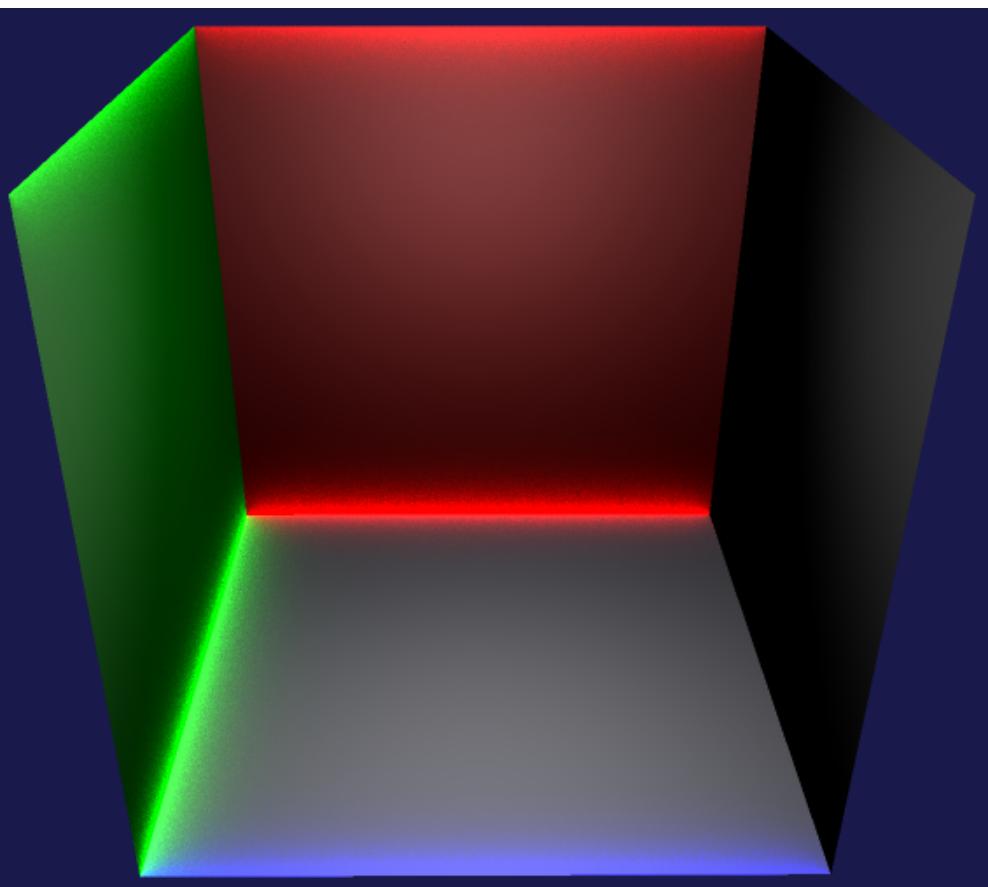
# Ombre dure & Ambient occlusion



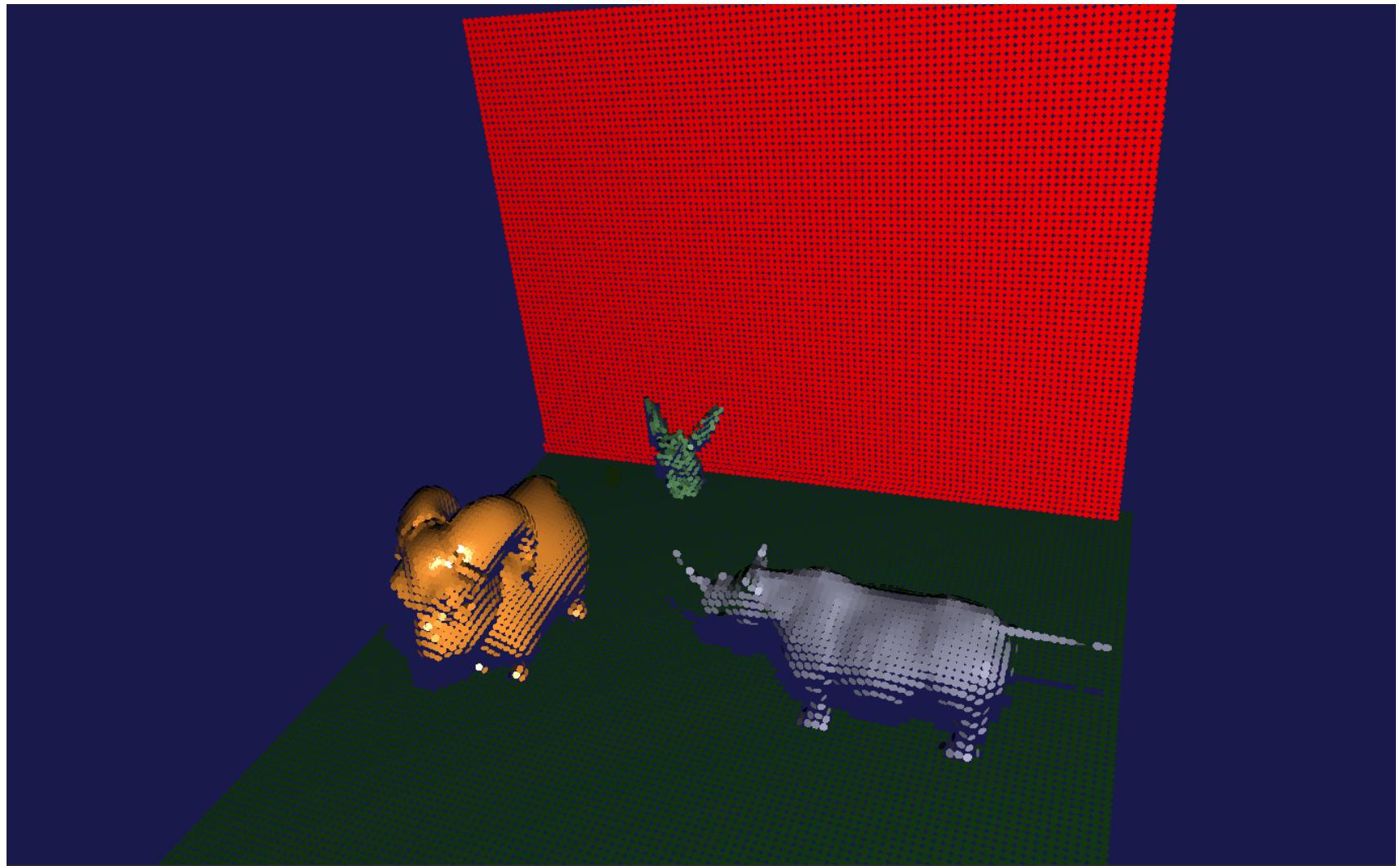
# Multi lumières & ambient occlusion



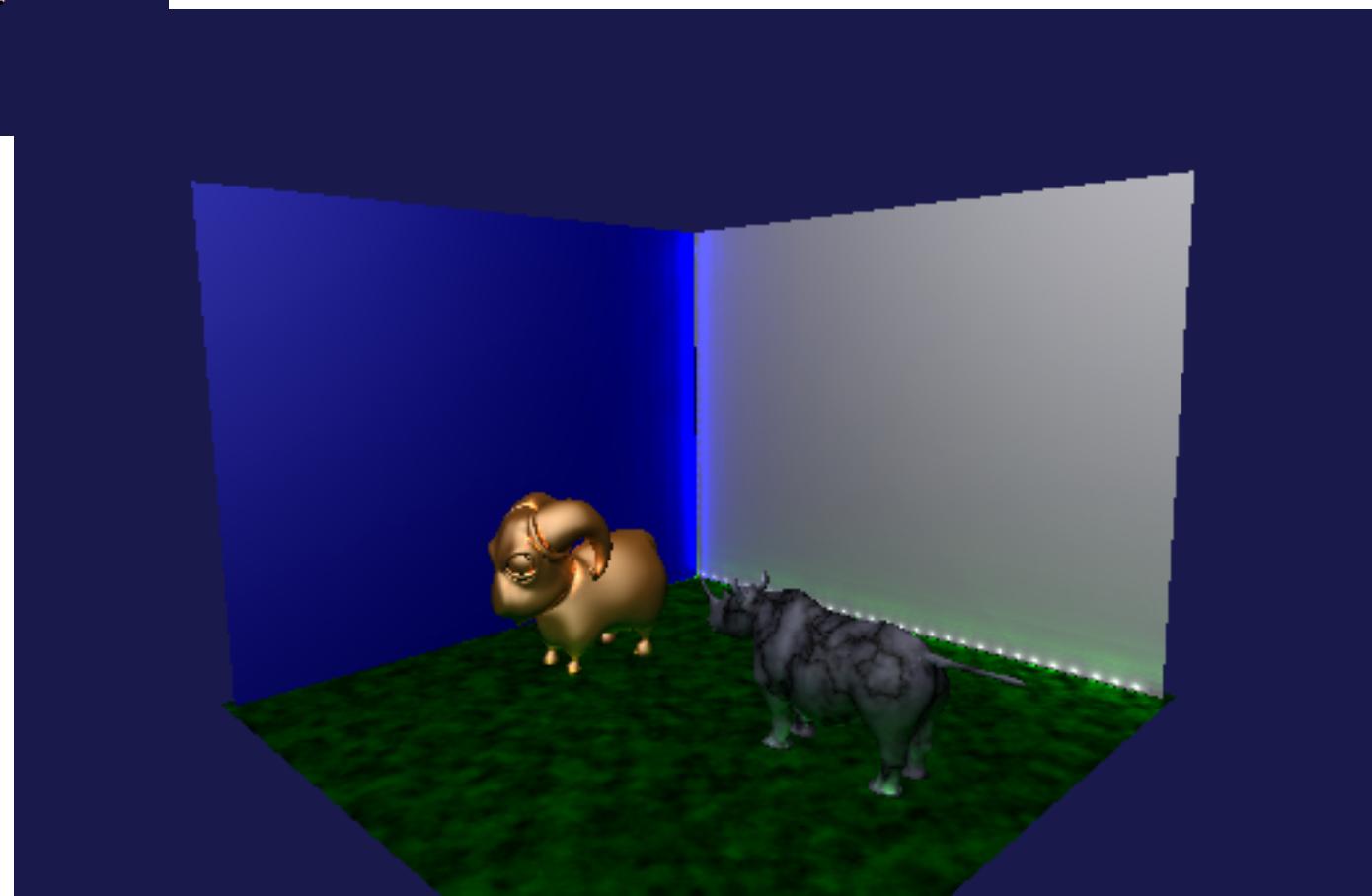
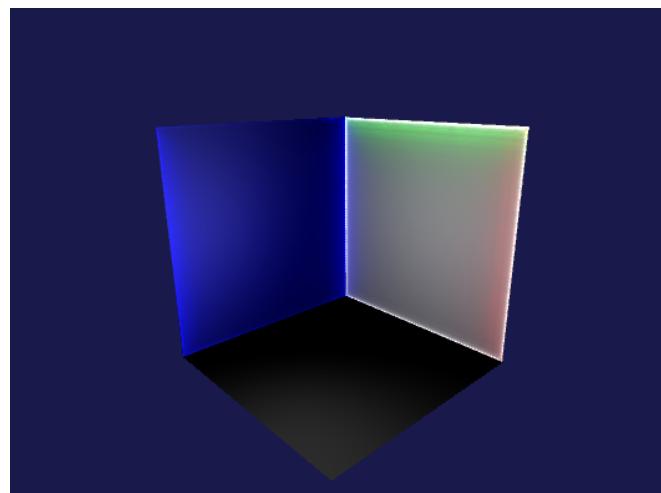
# Path Tracing à un et deux rebonds



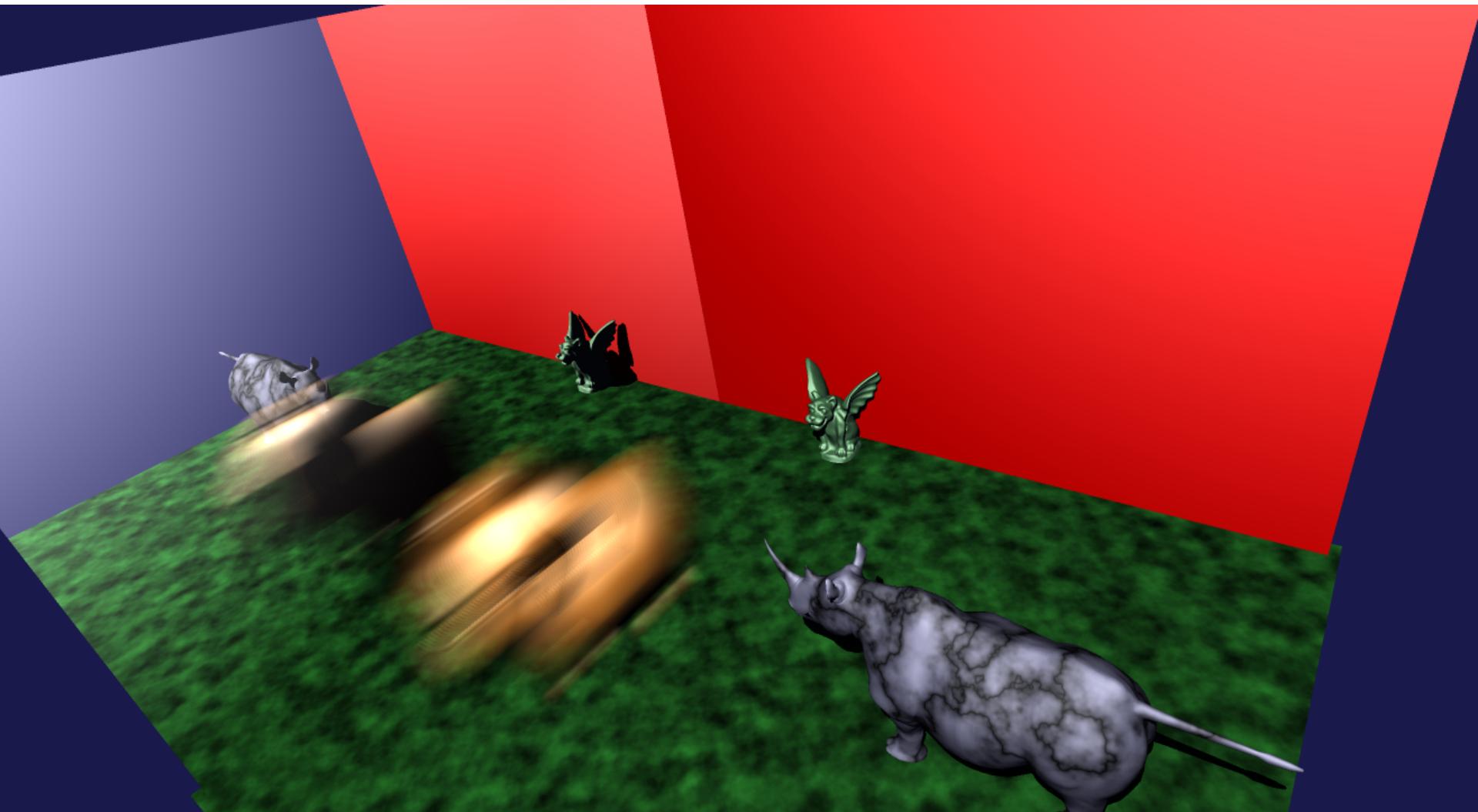
# PBGI: Surfels (octree)



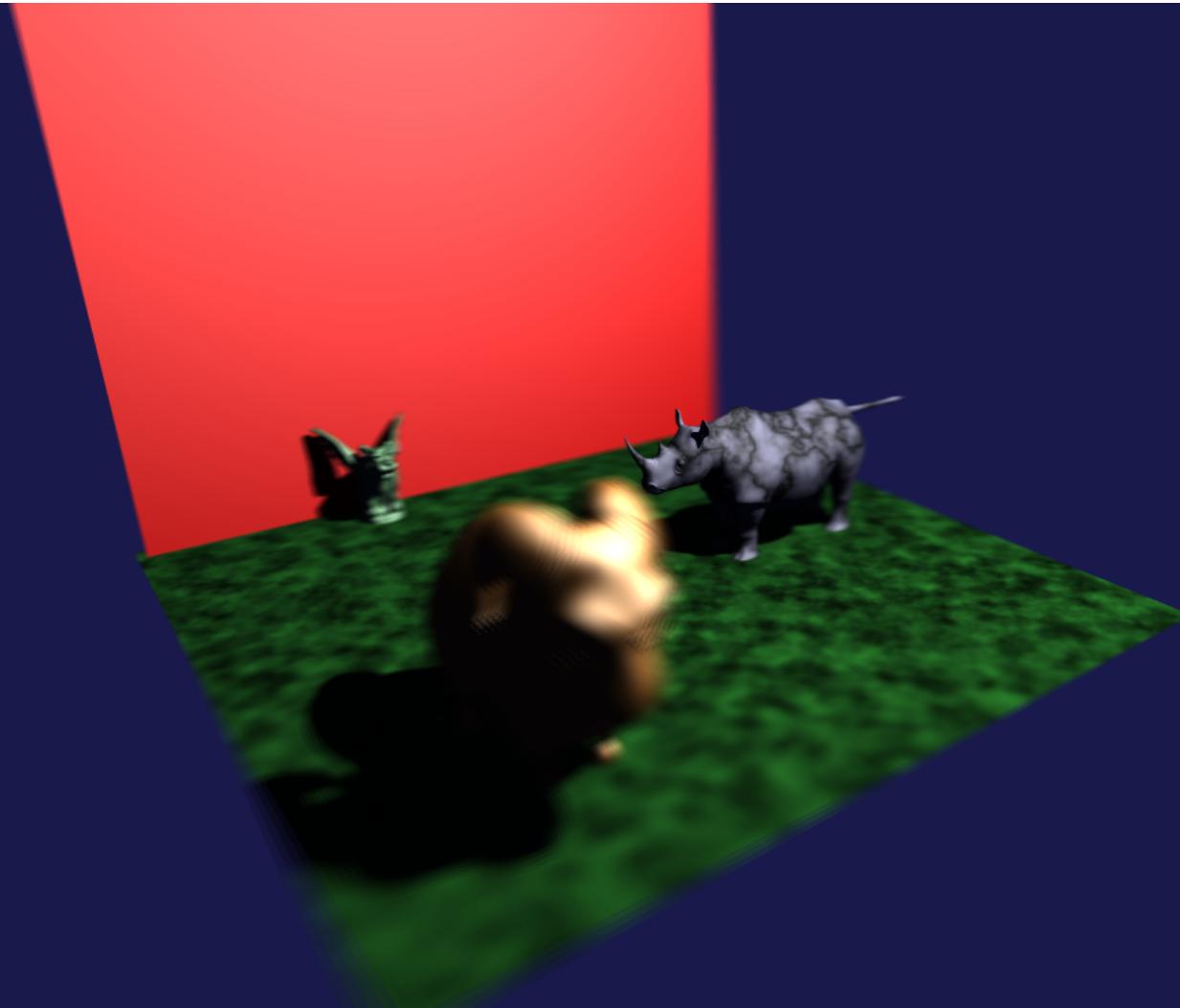
# PBGI



# Motion blur



# Focus



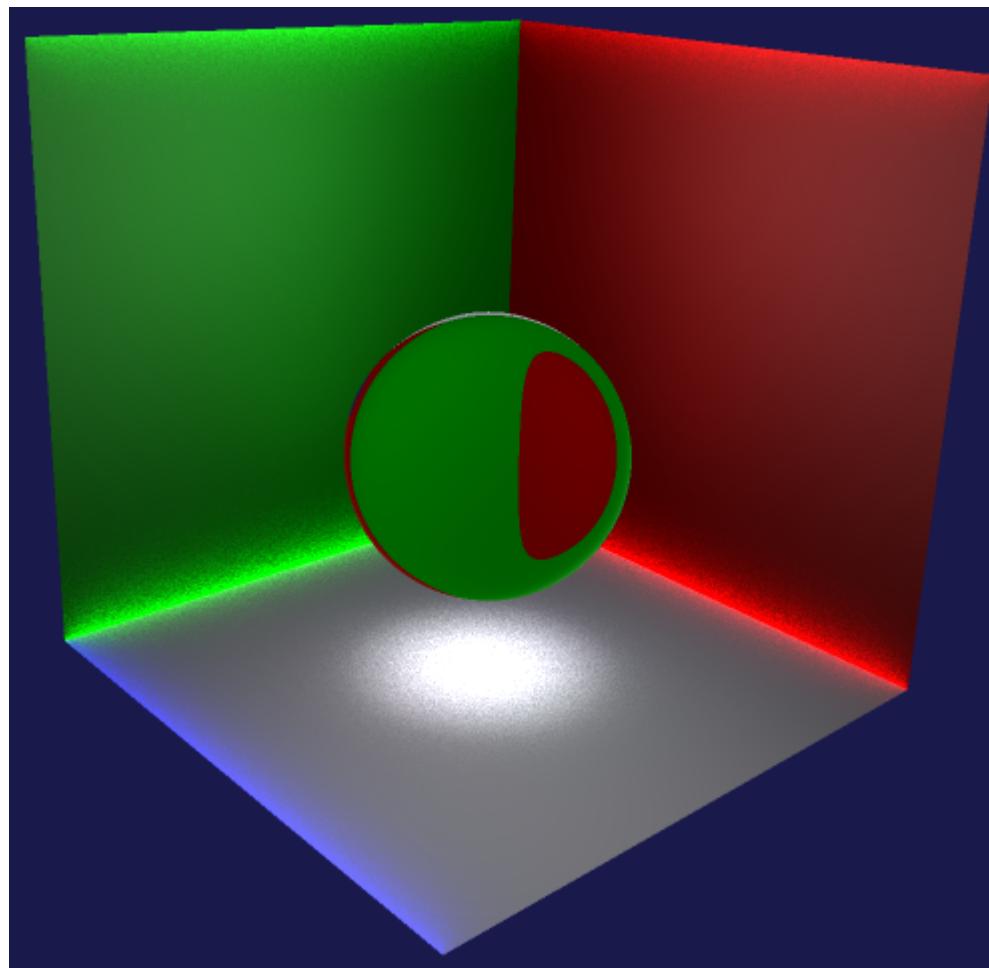
# Miroir, skybox & texture par le bruit



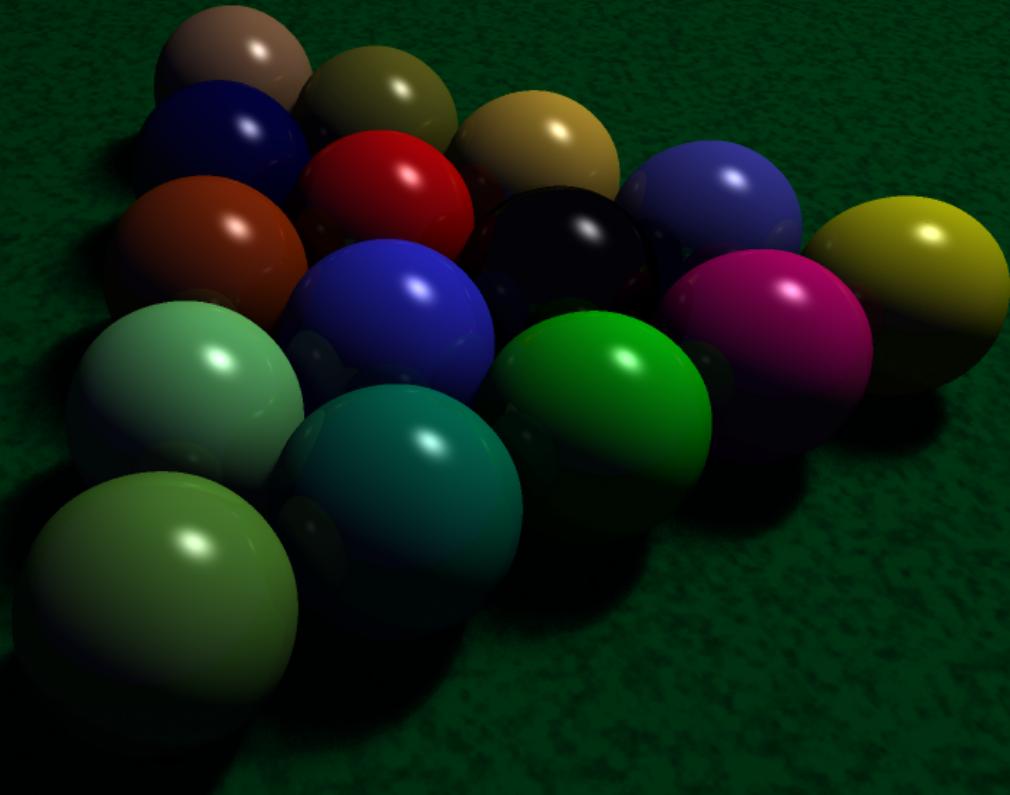
# Miroir, skybox & texture par le bruit



# Glass & Path tracing



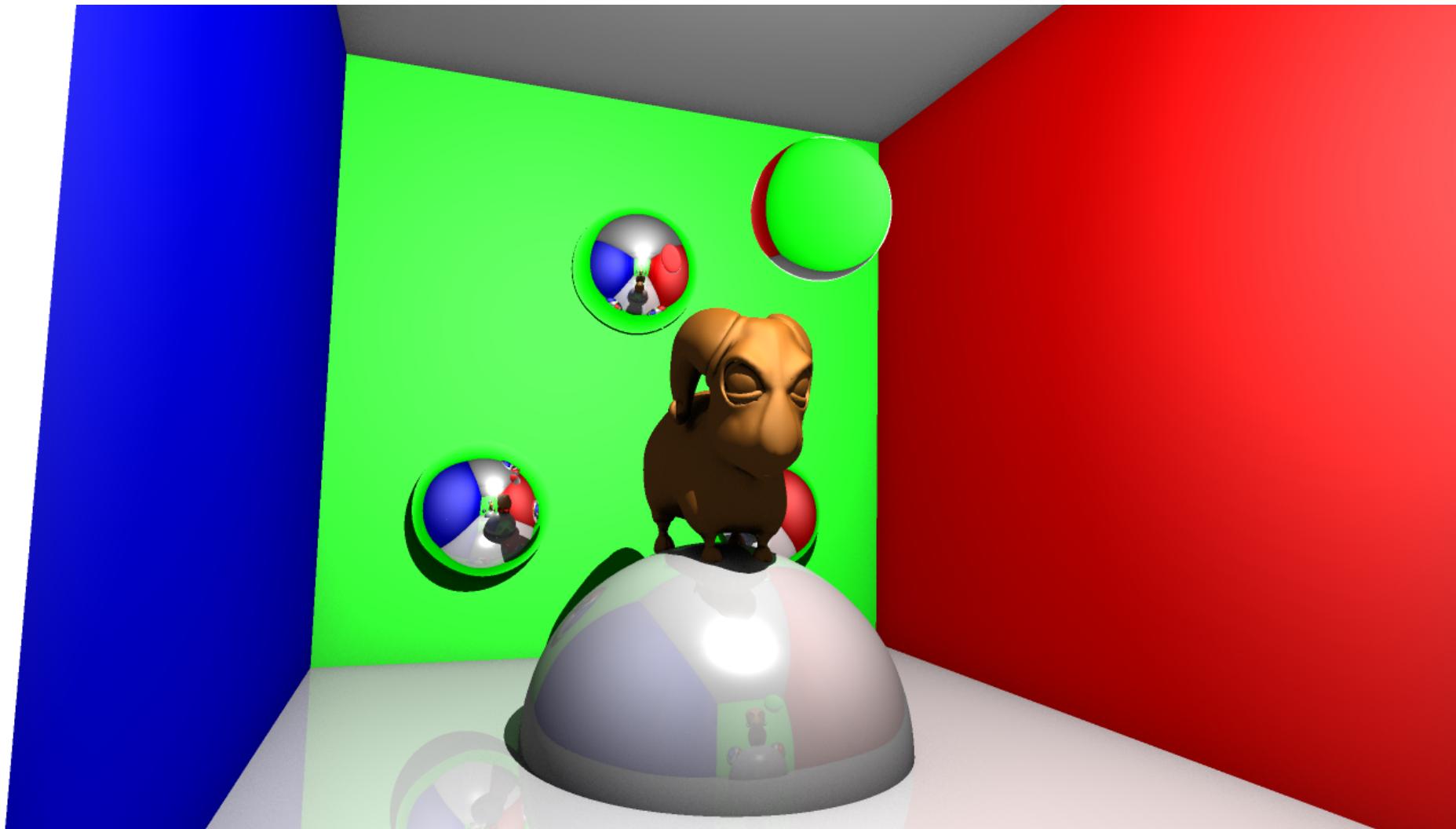
# Glossy effect & ombre douce



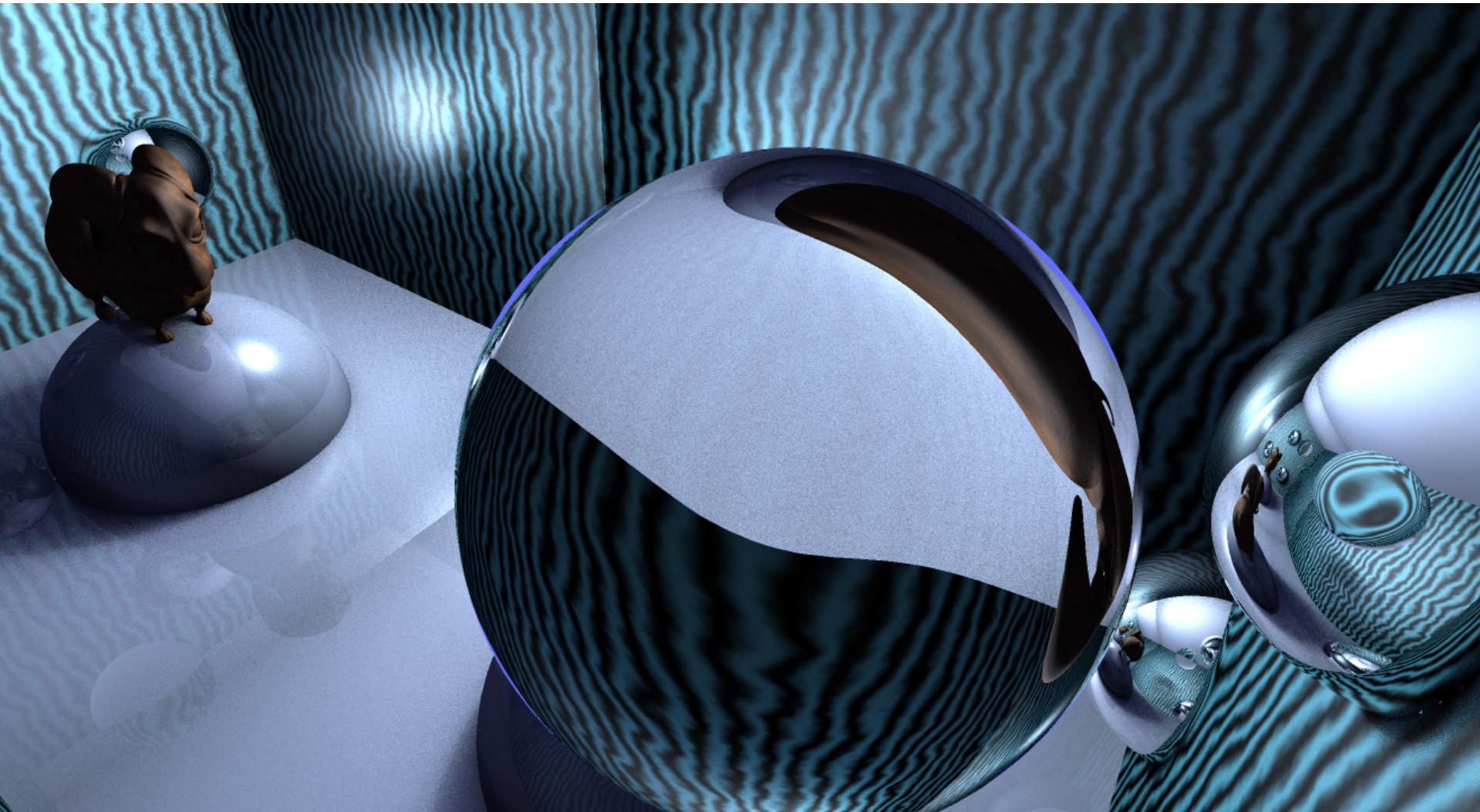
# Focus



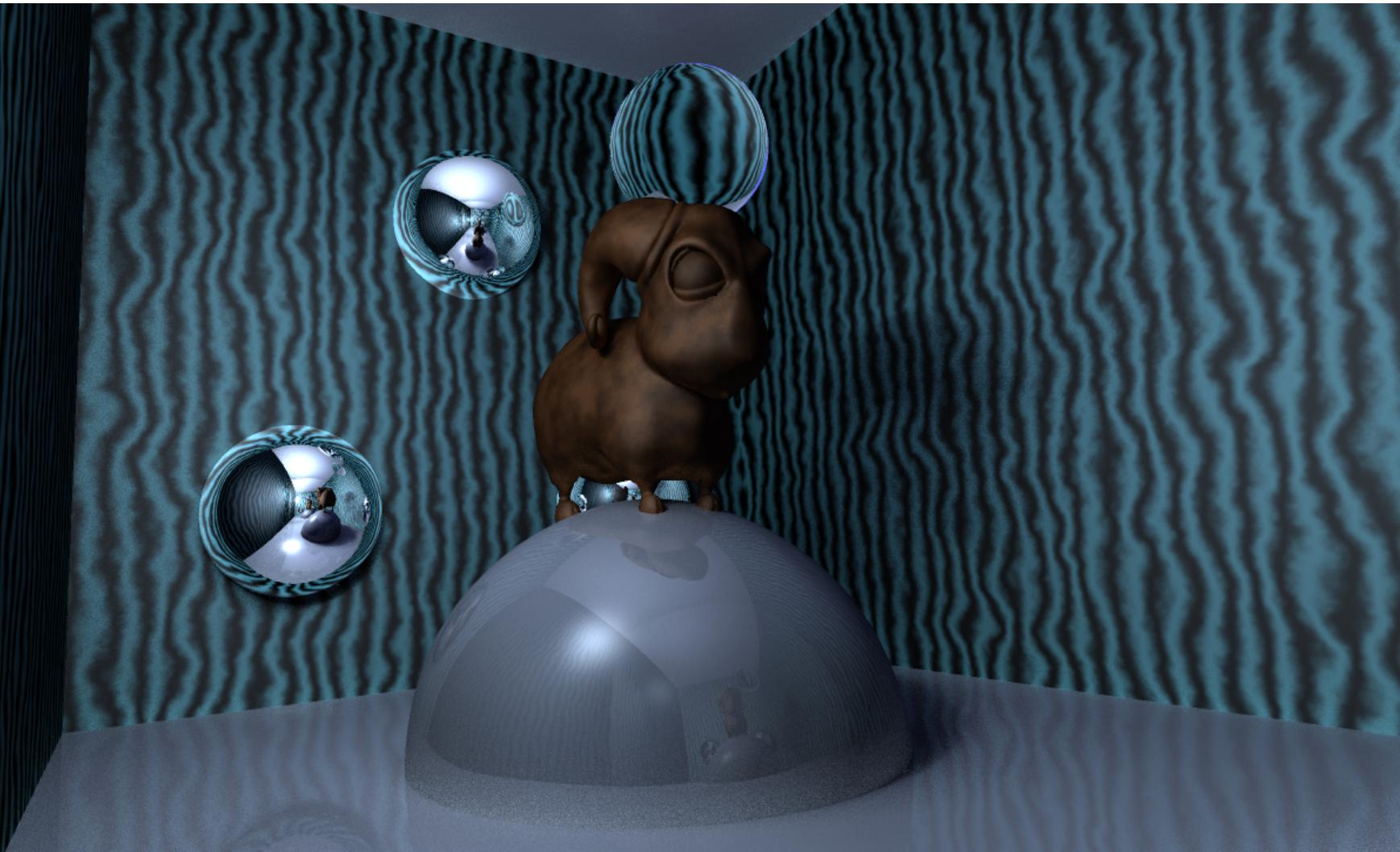
# Verre, miroirs, glossy, ombre dure & ambient occlusion



# **Verre, miroirs, glossy ambient occlusion & soft shadow**



# **Verre, miroirs, glossy ambient occlusion, soft shadow & path tracing**

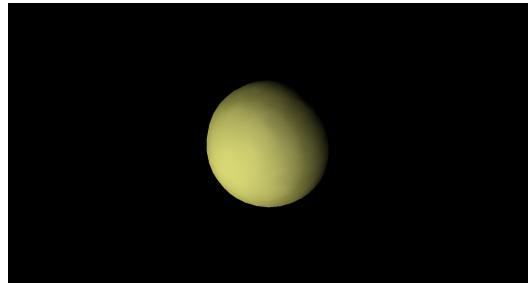


# Points techniques

- OpenMP
- MVC design pattern
- Contrôle avancé avec la GUI
  - "FPS mode" pour le focus
  - scène "dynamique" (lights, objects...)

# Améliorations possibles

- KDtree
- GPU



- Textures (couleur, bump map...)