

# Ronald: A Multithreaded Path Tracing Renderer

## SENG 475 Final Project

Jayden Chan

<https://github.com/jayden-chan/ronald>

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# What is Path Tracing?

- ▶ Computer graphics technique for creating photo realistic renderings

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- ▶ Monte Carlo integration

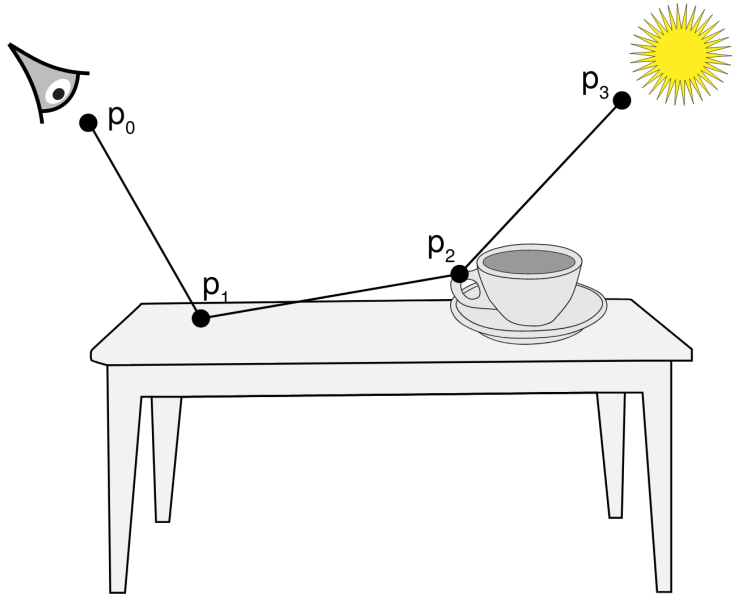
# What is Path Tracing?

- ▶ Computer graphics technique for creating photo realistic renderings
- ▶ Monte Carlo integration
- ▶ Based on the physical characteristics of light and the world (PBR)

# What is Path Tracing?

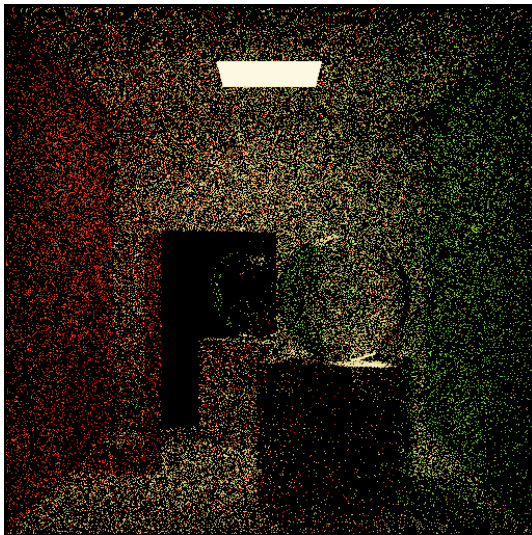
- ▶ Computer graphics technique for creating photo realistic renderings
- ▶ Monte Carlo integration
- ▶ Based on the physical characteristics of light and the world (PBR)
- ▶ Very slow

# What is Path Tracing?



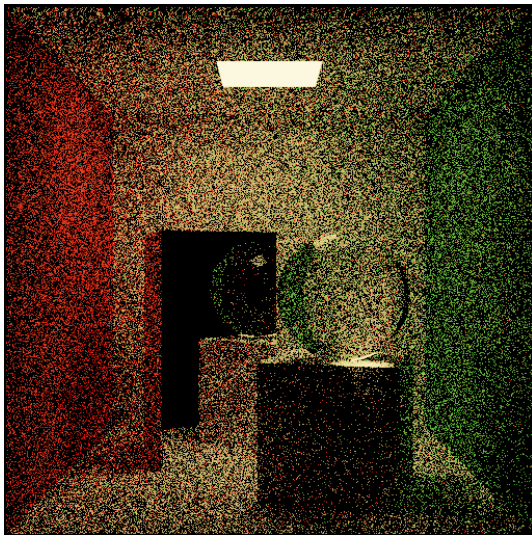
# Example: Monte Carlo Integration Convergence

Samples: 10



# Example: Monte Carlo Integration Convergence

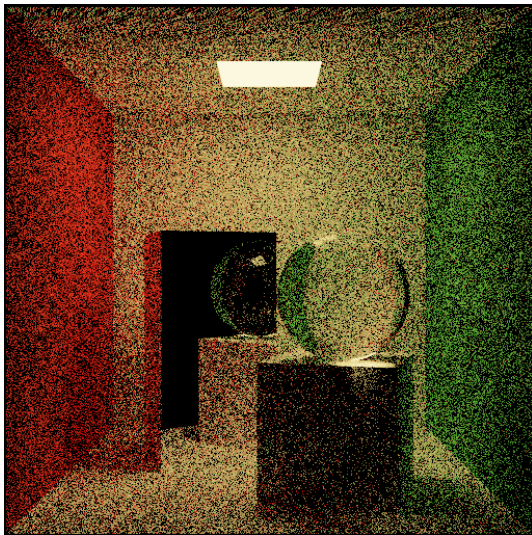
Samples: 25





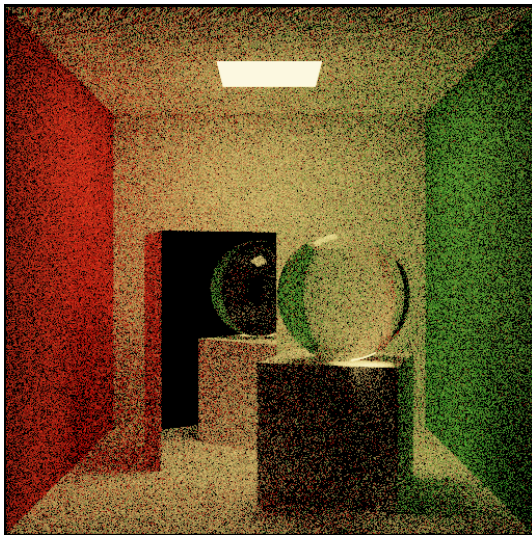
# Example: Monte Carlo Integration Convergence

Samples: 50



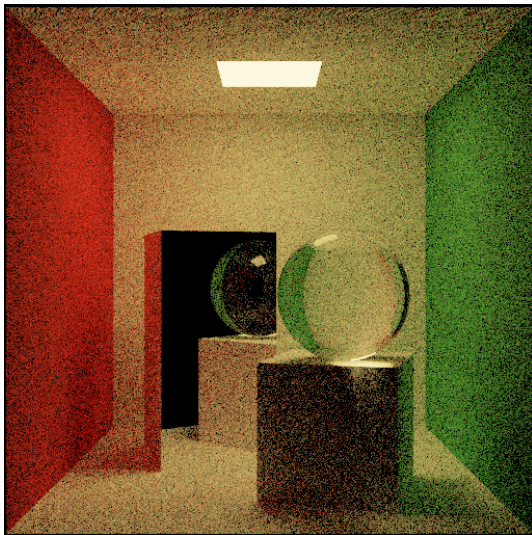
# Example: Monte Carlo Integration Convergence

Samples: 100



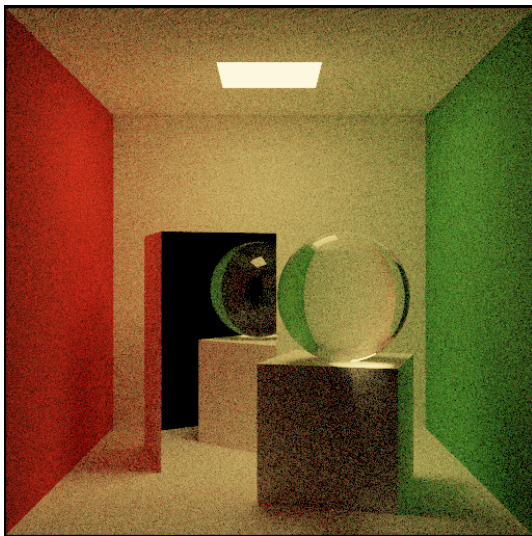
# Example: Monte Carlo Integration Convergence

Samples: 200



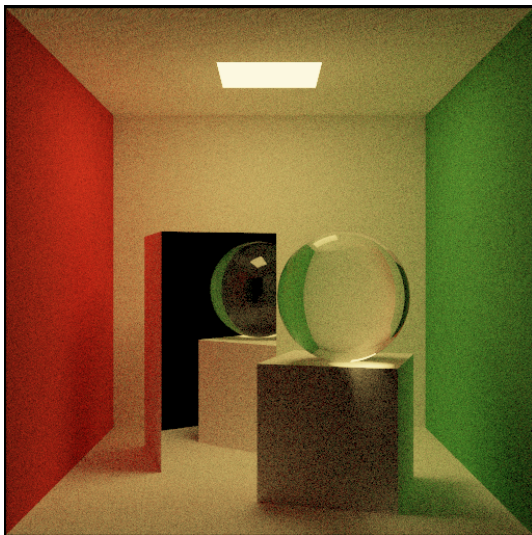
# Example: Monte Carlo Integration Convergence

Samples: 500



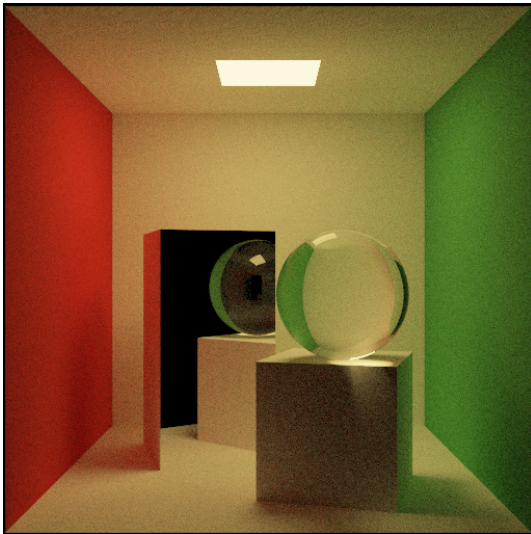
# Example: Monte Carlo Integration Convergence

Samples: 1300



# Example: Monte Carlo Integration Convergence

Samples: 3000



# Example: Monte Carlo Integration Convergence

Samples: 15000

