Proposal

Description –

To create a render application that renders a simple object under fixed environment conditions (lighting, position etc.) using multiple processing units preferable GPU and CPU. The projects aim to run mathematical computations on multiple cores in parallel to achieve true parallelism.

Understanding Render engine -

Render engines are software's that uses a 3d object, runs complex mathematical computations on it to output a picture that looks as close as possible to real world. The computations are mainly with respect to light interacting with different surfaces.

In order to attain output as close to real world, properties like ray tracing, reflection, refraction, shadows etc. are to be implemented. On top of these basic operations, advanced render engines implement more techniques and optimize to render more frames which could later be put into a series of frames to make a video.

Scope of this project -

1) Understand the how rendering works and the mathematical computations behind it.

2) Understand python's implementation of parallel processing, find packages that allow a piece of code to be run on a specific target(core).

3) implement a basic render engine that uses the power of parallel processing.

This project aims to utilize and focus on parallel processing to full extent. The effectiveness of rendering depends on the scope and time of the project.