*For the programming task you have to use C++*
*For questions and help refer to the course's discord server*
*Or the course's e-mail:*
*raytracingcourse@chaos.com*

Slides: CRT 06 Camera Animation

**Task 1:**

Implement functionality to transform the camera vector (0, 0, -1) by **panning** the camera by 30 degrees (rotating the vector around the **Y**-axis by 30 degrees).

**Task 2:**

Generate an image where the camera is **not** at (0, 0, 0) and the triangle is visible:

```
CRTTrinagle tri {
        CRTVector(-1.75, -1.75, -3),
        CRTVector(1.75, -1.75, -3),
        CRTVector(0, 1.75, -3)
};
```

***In the images for the following tasks, one or more triangles (with vertex positions of your choice) must be visible:***

**Task 3:**

Implement a camera representation with functionality for executing some or all camera movements: **dolly, truck, pedestal, pan, tilt, roll**. Generate an image before and after the movement.

**Task 4:**

Add functionality for performing different combinations of camera movements (example: first **pan**, then **tilt**, then **truck**, etc.). Generate an image before and after the movements.

**Task 5:**

Generate images/frames for a short clip with animated camera movement. Each frame should manipulate the camera in some way (example: 72 frames and **pan** the camera by 5 degrees on each frame). You can present the animation in the form of:

- Separate .ppm files (which may require many resources)

- Separate jpeg/png files (converted from .ppm, using software like Gimp, ...)
- A video file, assembled from the sequence of images, using software like Blender, Adobe Premiere, etc.