

COMP220: Graphics & Simulation

9: The Bullet physics engine

Representing rotations

Quaternions

- ▶ Represent **rotations** and **orientation** in 3D
- ▶ Do not suffer from **gimbal lock**
- ▶ More compact than matrices
- ▶ Can **interpolate** between them
- ▶ [http://www.opengl-tutorial.org/
intermediate-tutorials/
tutorial-17-quaternions/](http://www.opengl-tutorial.org/intermediate-tutorials/tutorial-17-quaternions/)

Bullet

Bullet

We are going to:

- ▶ Download the Bullet source code from `http://bulletphysics.org/`
- ▶ Compile it
- ▶ Look at the demo application
- ▶ Integrate Bullet with our OpenGL application