EE4208
Computer Graphics for Engineers

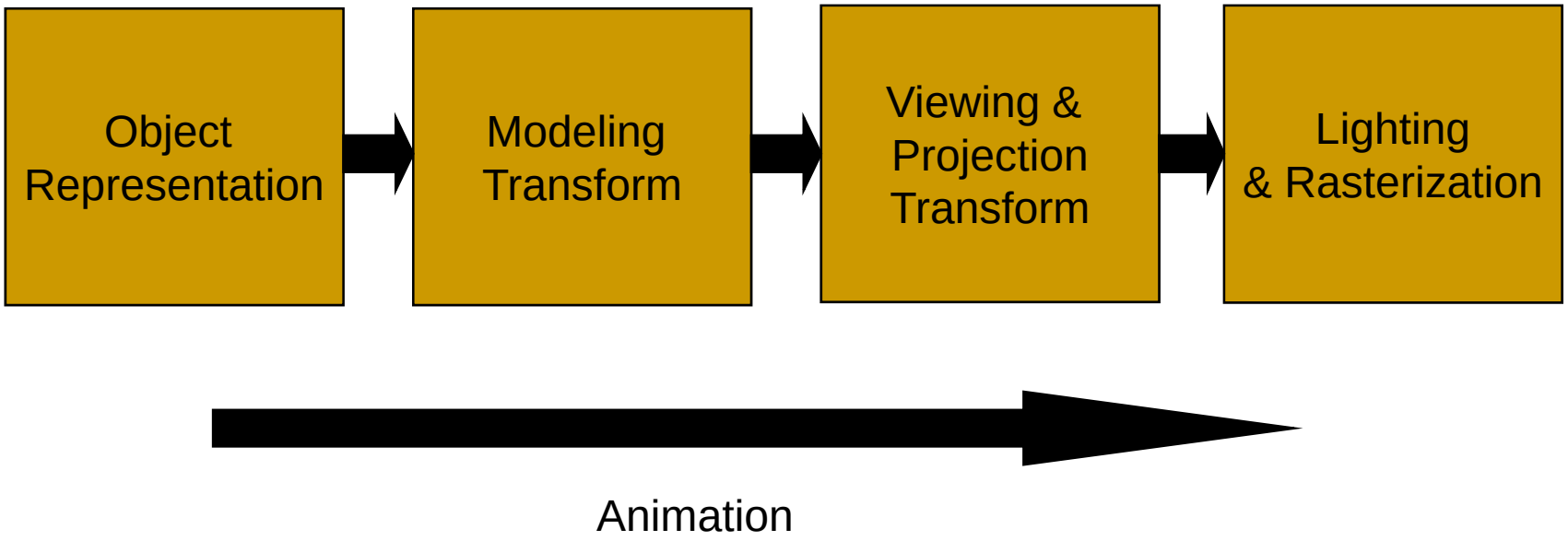
Course Aim

- The aim of this course is to provide students with an understanding of the principles, concepts, and techniques of computer graphics from an engineering viewpoint.

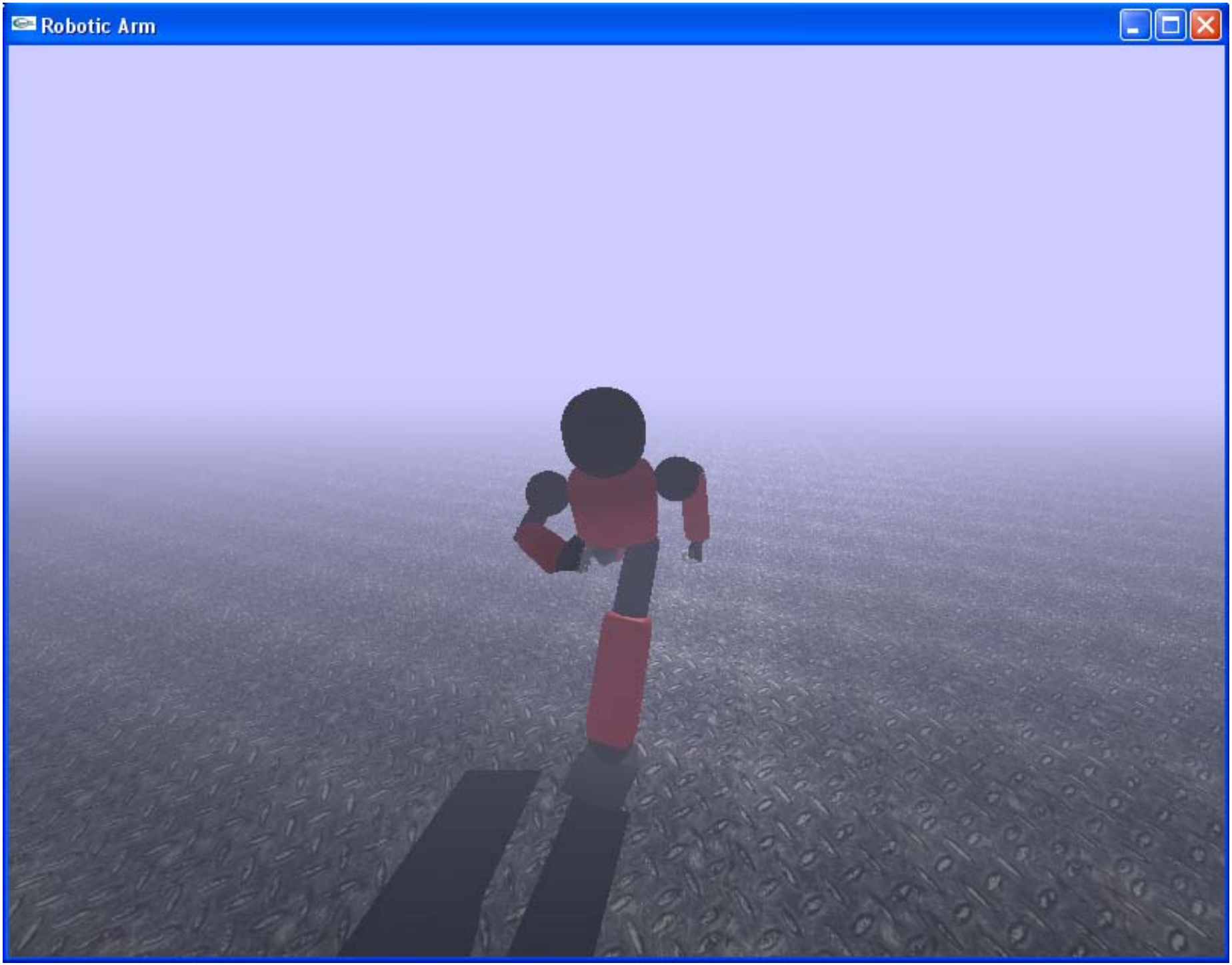
CILOS

- (CILO1) Apply 3D object representation techniques to build up a graphics scene
- (CILO2) Model and view articulated objects by hierarchical structuring techniques and coordinate transform
- (CILO3) Apply lighting, shading and rasterization techniques to create a 2D image
- (CILO4) Apply texture mapping and animation techniques
- (CILO5) Create an animation or a game using computer graphics

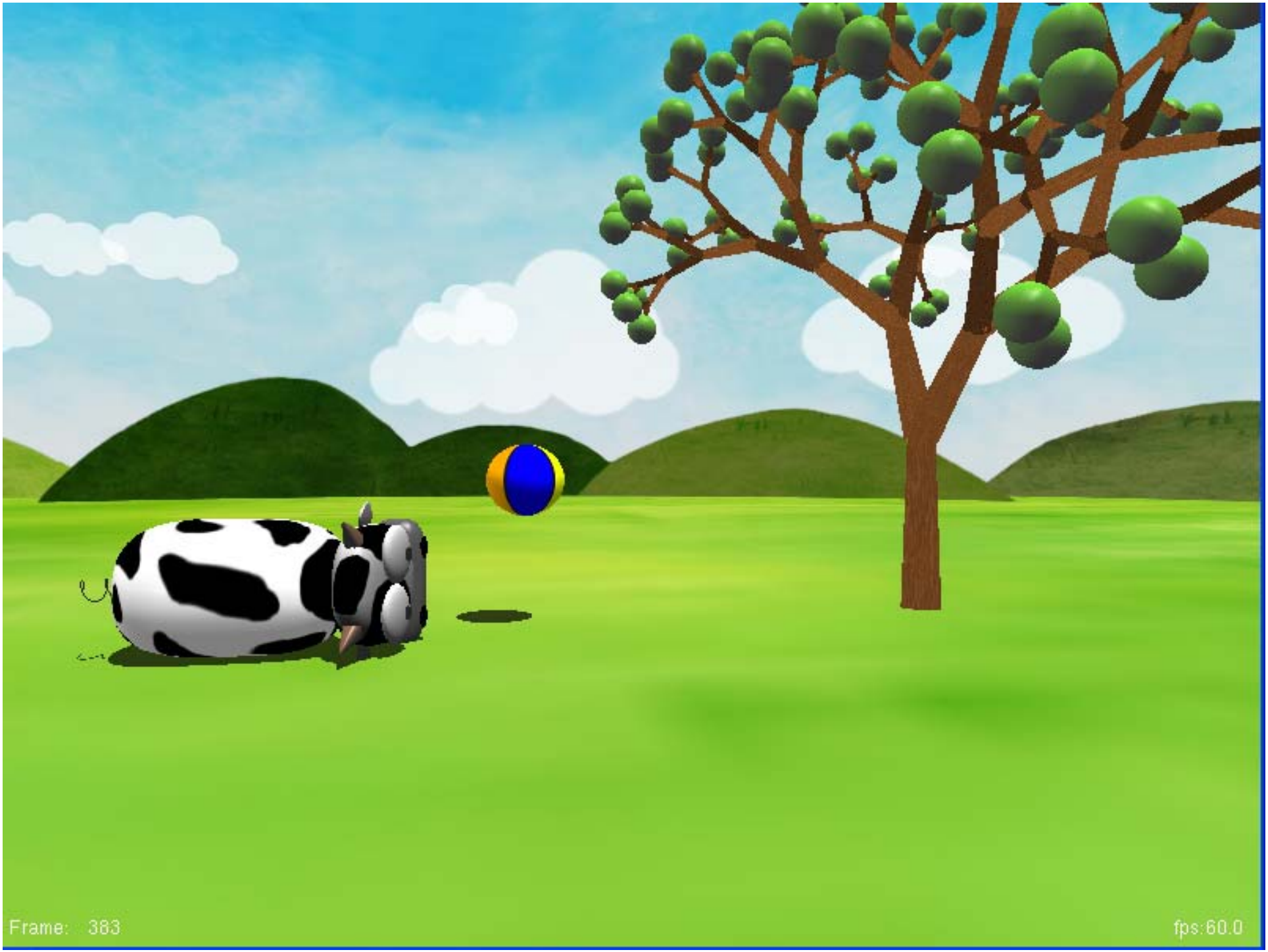
Course Content

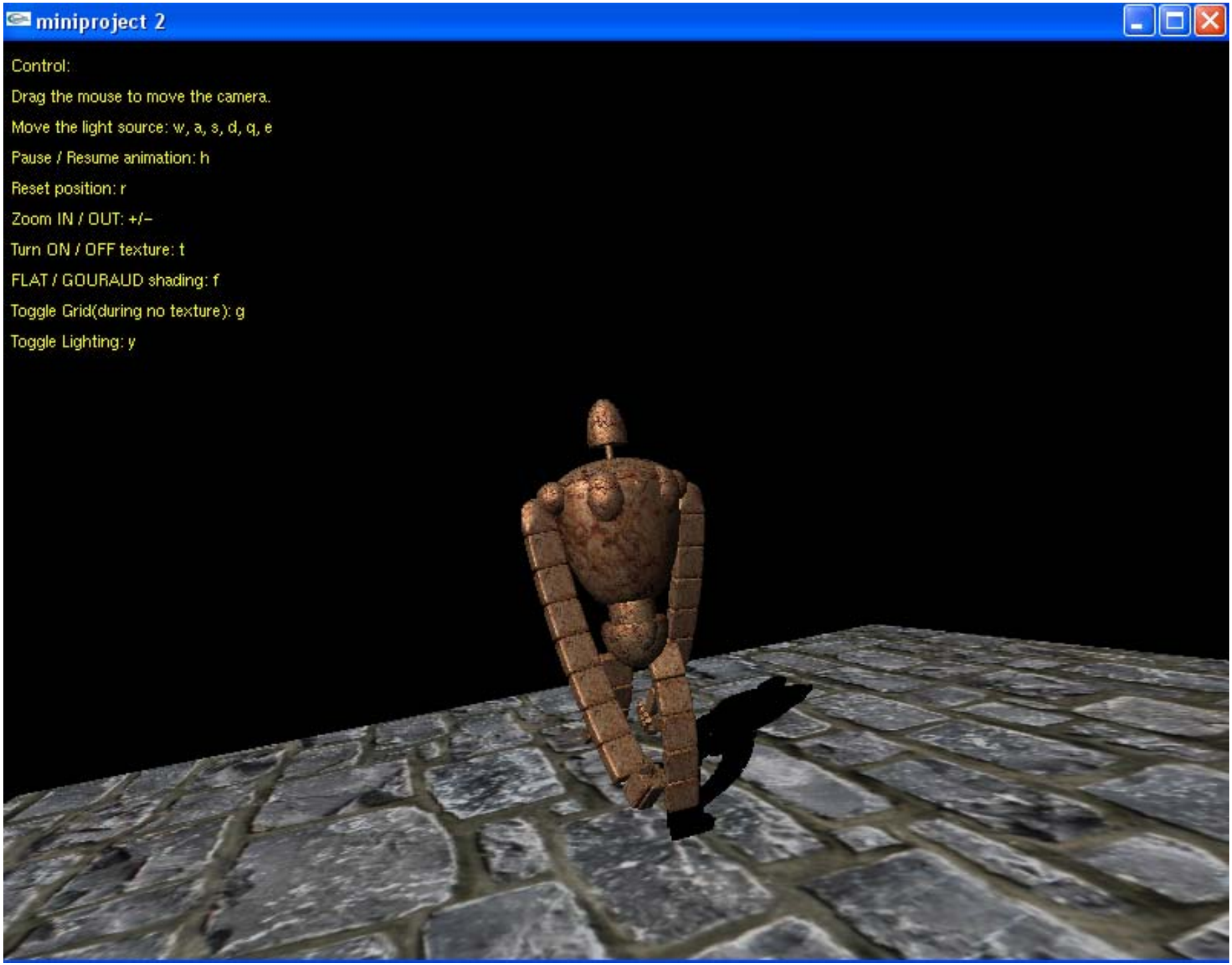


Examples of A+ Projects


Robotic Arm


Wall-e


Frame: 383
fps:60.0


miniproject 2
Control:
Drag the mouse to move the camera.
Move the light source: w, a, s, d, q, e
Pause / Resume animation: h
Reset position: r
Zoom IN / OUT: +/-
Turn ON / OFF texture: t
FLAT / GOURAUD shading: f
Toggle Grid(during no texture): g
Toggle Lighting: y

Applications

Movie Industry

- Type I: Created entirely Using CG

  e.g. “Madagascar”
- Type 2: Real people + CG characters

  e.g. “District 9”
- Type 3: CG Movie + Real People

  e.g. “Space Battleship Yamato”
- Type 4: Conventional movie with CG special effects

  e.g. “Initial D”
- Type 5: “3D Movies”

  e.g. “Avatar”

Other Applications

- Game Industry
- Advertising Industry
- Design Industry
- Virtual Reality
- Visualization
- Training
- Education
- Computer Art

- Partial list of CG companies in Hong Kong
  http://www.cgvisual.com/links/html/CGVlinks_hk_APP.htm

Assessment and Schedule

- Coursework 40%
- 2 hour Examination 60%

- Students must obtain

- i) $\geq$ 35 marks (out of 100 marks) in the coursework AND
- ii) $\geq$ 35 marks (out of 100 marks) in the examination

- to get a PASS in the course.

Coursework Components

Time	Item	Scope	Percentage
Wk 6	**Quiz 1**	everything taught in Wk 1- 5	$33\frac{1}{3}\%$
Wk 11	**Quiz 2**	everything taught in Wk 6 - 10	$33\frac{1}{3}\%$
Wk 13	**Mini-Project**		$33\frac{1}{3}\%$

- **Further Information:**

http://www.cityu.edu.hk/ug/current/course/EE4208.htm