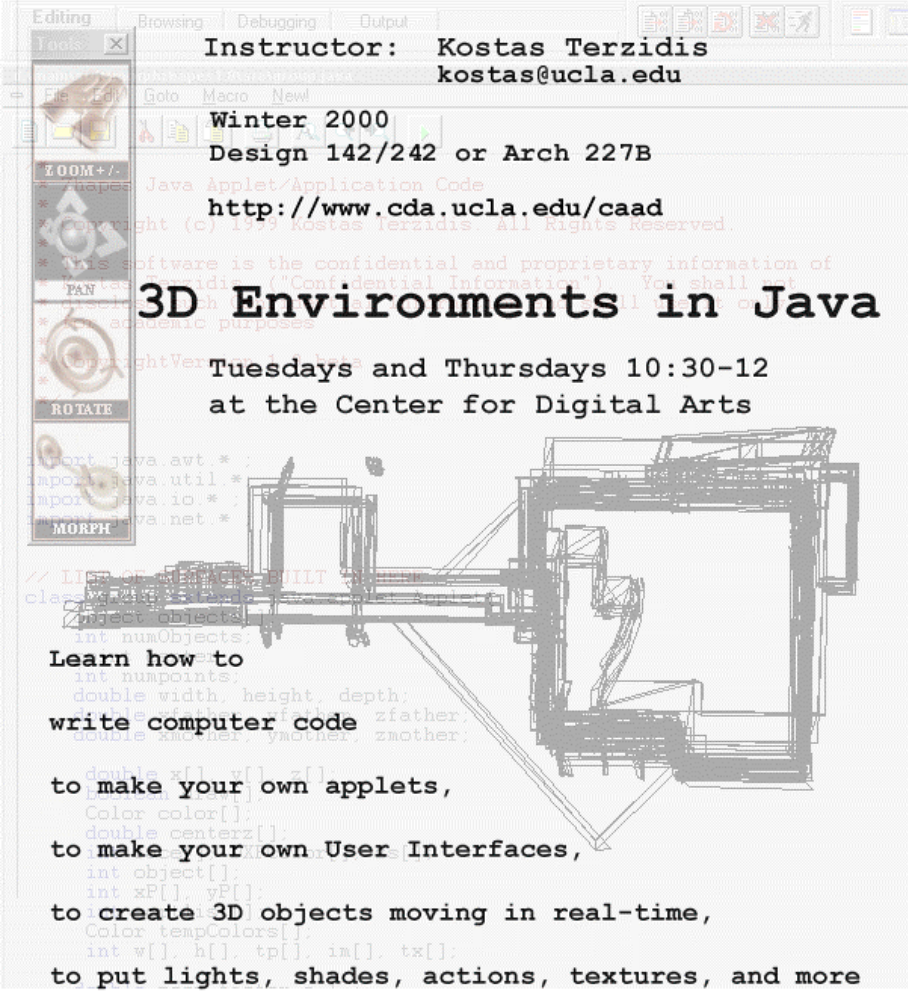


# Arch 227B: Introduction to Geometric Modeling - { 3D Environments in Java }

[Winter 2000] Tue and Thu 10:30 - 12:00pm [CDA](#) Lecture Room  
[Instructor]: [Kostas Terzidis](#) 1124D Perloff Hall tel. 825-8004  
[E-mail]: [kostas@ucla.edu](mailto:kostas@ucla.edu)  
[Class Notes]: <http://www.cda.ucla.edu/caad>  
[Prerequisites]: [Arch 227A](#) or knowledge of [Java](#) language  
T.A. [Yoshihiro Kobayashi](#) [sunp@ucla.edu](mailto:sunp@ucla.edu)



**Instructor: Kostas Terzidis**  
[kostas@ucla.edu](mailto:kostas@ucla.edu)

**Winter 2000**  
**Design 142/242 or Arch 227B**  
Java Applet/Application Code  
<http://www.cda.ucla.edu/caad>  
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## 3D Environments in Java

Tuesdays and Thursdays 10:30-12  
at the Center for Digital Arts

```
import java.awt.*;
import java.util.*;
import java.io.*;
import java.net.*;

// DESIGNER: KILT
class ProjectObjects {
    int numObjects;
    int numPoints;
    double width, height, depth;
    double xfather, yfather, zfather;
    double xmother, ymother, zmother;
    double x[], y[], z[];
    Color color[];
    double centerz[];
    int object[];
    int xP[], yP[];
    to create 3D objects moving in real-time,
    Color tempColors[];
    int w[], h[], tp[], ix[], tx[];
    to put lights, shades, actions, textures, and more
```

**Learn how to**  
**write computer code**  
**to make your own applets,**  
**to make your own User Interfaces,**  
**to create 3D objects moving in real-time,**  
**to put lights, shades, actions, textures, and more**

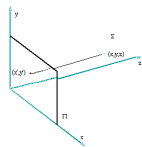
# {SCHEDULE}

## [Week1]: Java basics/Café J++ basics:

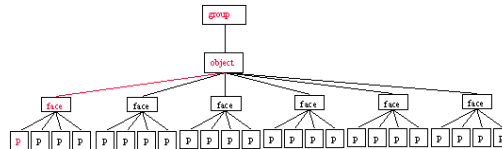
- How do we compile, debug, include libraries, setup multi-file code.

## [Week2]: Projection systems:

- What is projection, 3D space, perspective and how to setup graphics and screen



Point(x,y,z)  
Pixel(x,y,0)  
z -> 0



## [Week3]: Object creation/internal representation:

- How do we represent a point, segment, face, solid, hole, and group as classes.

## [Week4]: Transformations:

- What are matrices and how do we use them for translation, rotation, scaling or reflection.

## [Week5]: User interface:

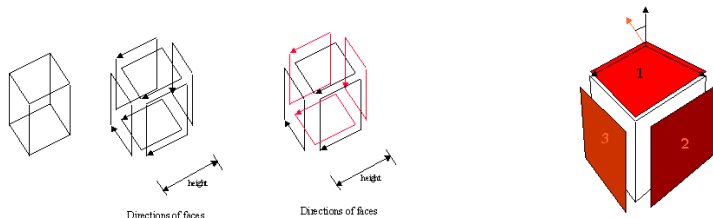
- How to create graphics user interfaces (GUIs) using working plane, snapping, zoom, and pan.

## [Week6]: File I/O:

- How to stream data over operating systems or networks and how to read and write DXF and VRML file formats.

## [Week7]: Hidden line/Shading/Light:

- What is a vector and how do we use it to calculate the light and shade on faces using sorting, matching and color tables.



## [Week8]: Topological editing/morphing:

- How do we alter the geometry and topology of points, faces, objects and groups.

## [Week9]: Texture mapping:

- What is an image and how to map it to a polygon in 3D space.

## [Week10]: Simple 3D animation:

- What is multitasking and how to use threads to create real-time animation using parallel processing.