

Lab 4: Recursive Tree Landscape

This lab will let you create a landscape of natural tree using openFrameworks (OF) library and recursive function call technology.

In class we showed how to use recursive function call technic to show Recursive Circle art and Recursive Square art (Here attached the two screenshots). The demo code source files could be found from the "Class Notes" folder on Canvas.

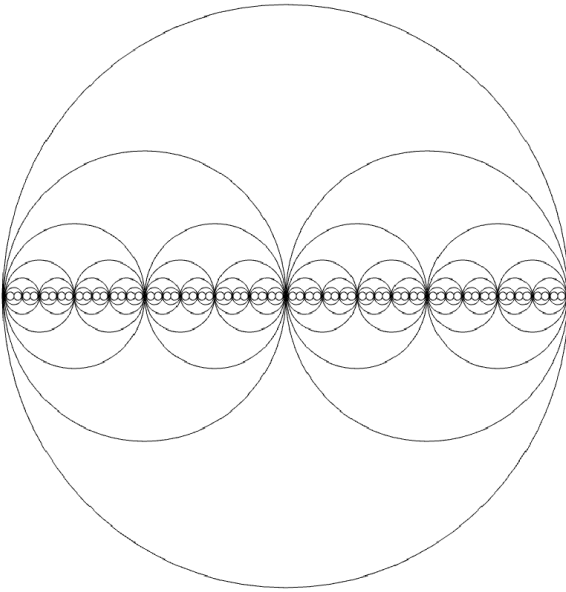


Figure 1: Recursive Circle

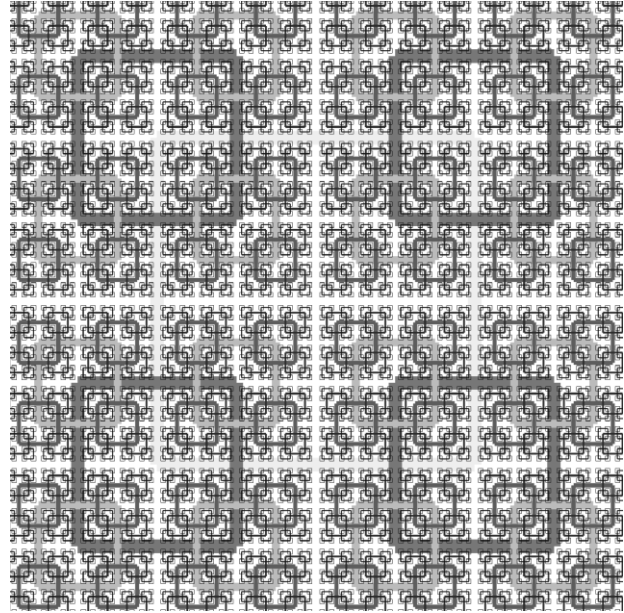


Figure 2: Recursive Rectangle

1. Create a recursive function calling OF 2D shape functions to create a "Tree" like image.
2. Make use of matrix transformation functions and style functions to make your "Tree" as natural as possible.

A list of recommended matrix transformation functions are:

- (a) void ofRotate(float);
- (b) void ofTranslate(float, float);
- (c) void ofPushMatrix();
- (d) void ofPopMatrix();
- (e) void ofScale(float, float);

A list of style functions are:

- (a) void ofSetCircleResolution(int);
- (b) void ofSetColor(int, int, int, int);
- (c) void ofSetRectMode(int);
- (d) void ofSetLineWidth(float);

A list of recommended 2D shape functions are:

- (a) void ofDrawLine(int, int, int, int);
- (b) void ofDrawRectangle(int, int, int, int, int, int);
- (c) void ofBeginShape();
- (d) void ofEndShape();

- 3. Use OF library 2D shape functions design a background image for your natural tree to make the whole screen looks like a landscape.

An example demo I made for this lab assignment is here:

<https://lyle.smu.edu/~zizhenc/source/TreeLandscape.html>.

Grading Rubric:

- 1. Using recursive function call technology: 10 pts.
- 2. Using matrix transformation functions: 20 pts.
- 3. Using style functions: 10 pts.
- 4. Make your tree as natural as possible: 20 pts.
- 5. Using 2D shape functions to design a background: 20 pts.
- 6. No compiling errors: 10 pts.
- 7. Good Submission: 10 pts.