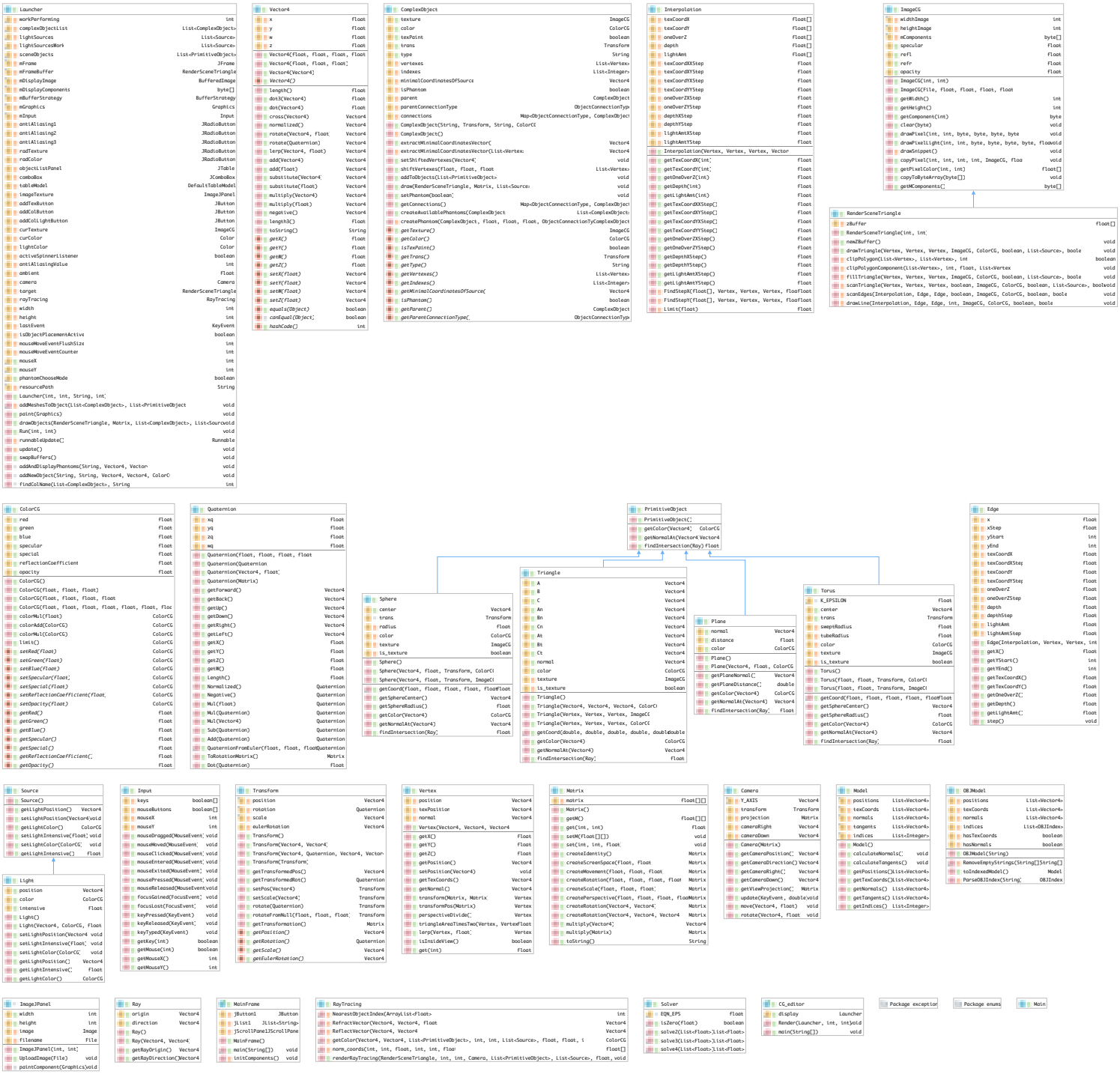
Launcher
workPerforming int
complexObjectList List<ComplexObject>
lightSources List<Source>
lightSourcesMark List<Source>
sceneObjects List<PrimitiveObject>
mFrame JFrame
mFrameBuffer RenderSceneTriangle
mDisplayImage BufferedImage
mDisplayComponents byte[]
mBufferStrategy BufferStrategy
mGraphics Graphics
mInput Input
antiAliasing1 JRadioButton
antiAliasing2 JRadioButton
antiAliasing3 JRadioButton
radTexture JRadioButton
radColor JRadioButton
objectlistPanel JTable
comboBox JComboBox
tableModel DefaultTableModel
imageTexture ImageJPanel
addTexButton JButton
addColButton JButton
addColLightButton JButton
curTexture ImageCG
curColor Color
lightColor Color
activeSpinnerListener boolean
antiAliasingValue int
ambient float
camera Camera
target RenderSceneTriangle
rayTracing RayTracing
width int
height int
lastEvent KeyEvent
isObjectPlacementActive boolean
mouseMoveEventFlushSize int
mouseMoveEventCounter int
mouseX int
mouseY int
phantomChooseMode boolean
resourcePath String
Launcher(int, int, String, int)
addMeshesToObject(List<ComplexObject>, List<PrimitiveObject void
paint(Graphics) void
drawObjects(RenderSceneTriangle, Matrix, List<ComplexObject>, List<Sourcvoid
Run(int, int) void
runnableUpdate() Runnable
update() void
swapBuffers() void
addAndDisplayPhantoms(String, Vector4, Vector void
addNewObject(String, String, Vector4, Vector4, ColorC void
findColName(List<ComplexObject>, String int
Vector4
x float
y float
w float
z float
Vector4(float, float, float, float
Vector4(float, float, float)
Vector4(Vector4)
Vector4()
length() float
dot3(Vector4) float
dot(Vector4) float
cross(Vector4) Vector4
normalized() Vector4
rotate(Vector4, float Vector4
rotate(Quaternion) Vector4
lerp(Vector4, float) Vector4
add(Vector4) Vector4
add(float) Vector4
substitute(Vector4 Vector4
substitute(float) Vector4
multiply(Vector4) Vector4
multiply(float) Vector4
negative() Vector4
length3() float
toString() String
getX() float
getY() float
getW() float
getZ() float
setX(float) Vector4
setY(float) Vector4
setW(float) Vector4
setZ(float) Vector4
equals(Object) boolean
canEqual(Object) boolean
hashCode() int
ComplexObject
texture ImageCG
color ColorCG
texPoint boolean
trans Transform
type String
vertexes List<Vertex>
indexes List<Integer>
minimalCoordinatesOfSource Vector4
isPhantom boolean
parent ComplexObject
parentConnectionType ObjectConnectionTyp
connections Map<ObjectConnectionType, ComplexObjec
ComplexObject(String, Transform, String, ColorCG
ComplexObject()
extractMinimalCoordinatesVector(Vector4
extractMinimalCoordinatesVector(List<Vertex> Vector4
setShiftedVertexes(Vector4) void
shiftVertexes(float, float, float List<Vertex>
addToObjects(List<PrimitiveObject> void
draw(RenderSceneTriangle, Matrix, List<Source void
setPhantom(boolean) void
getConnections() Map<ObjectConnectionType, ComplexObjec
createAvailablePhantoms(ComplexObject List<ComplexObject
createPhantom(ComplexObject, float, float, float, ObjectConnectionTyComplexObject
getTexture() ImageCG
getColor() ColorCG
isTexPaint() boolean
getTrans() Transform
getType() String
getVertexes() List<Vertex>
getIndexes() List<Integer>
getMinimalCoordinatesOfSource(Vector4
isPhantom() boolean
getParent() ComplexObject
getParentConnectionType(ObjectConnectionTyp
Interpolation
texCoordX float[]
texCoordY float[]
oneOverZ float[]
depth float[]
lightAmt float[]
texCoordXXStep float
texCoordXYStep float
texCoordYXStep float
texCoordYYStep float
oneOverZXStep float
oneOverZYStep float
depthXStep float
depthYStep float
lightAmtXStep float
lightAmtYStep float
Interpolation(Vertex, Vertex, Vertex, Vector
getTexCoordX(int) float
getTexCoordY(int) float
getOneOverZ(int) float
getDepth(int) float
getLightAmt(int) float
getTexCoordXXStep() float
getTexCoordXYStep() float
getTexCoordYXStep() float
getTexCoordYYStep() float
getOneOverZXStep() float
getOneOverZYStep() float
getDepthXStep() float
getDepthYStep() float
getLightAmtXStep() float
getLightAmtYStep() float
FindStepX(float[], Vertex, Vertex, Vertex, floafloat
FindStepY(float[], Vertex, Vertex, Vertex, floafloat
Limit(float) float
ImageCG
widthImage int
heightImage int
mComponents byte[]
specular float
refl float
refr float
opacity float
ImageCG(int, int)
ImageCG(File, float, float, float, float
getWidth() int
getHeight() int
getComponent(int) byte
clear(byte) void
drawPixel(int, int, byte, byte, byte, byte void
drawPixellight(int, int, byte, byte, byte, byte, floavoid
drawSnipper() void
copyPixel(int, int, int, int, ImageCG, floa void
getPixelColor(int, int) float[]
copyToByteArray(byte[]) void
getMComponents(byte[]
RenderSceneTriangle
zBuffer float[]
RenderSceneTriangle(int, int
newZBuffer() void
drawTriangle(Vertex, Vertex, Vertex, ImageCG, ColorCG, boolean, List<Source>, boole void
clipPolygon(List<Vertex>, List<Vertex>, int boolean
clipPolygonComponent(List<Vertex>, int, float, List<Vertex void
fillTriangle(Vertex, Vertex, Vertex, ImageCG, ColorCG, boolean, List<Source>, boole void
scanTriangle(Vertex, Vertex, Vertex, boolean, ImageCG, ColorCG, boolean, List<Source>, boolvoid
scanEdges(Interpolation, Edge, Edge, boolean, ImageCG, ColorCG, boolean, boole void
drawLine(Interpolation, Edge, Edge, int, ImageCG, ColorCG, boolean, boole void
ColorCG
red float
green float
blue float
specular float
special float
reflectionCoefficient float
opacity float
ColorCG()
ColorCG(float, float, float)
ColorCG(float, float, float, float
ColorCG(float, float, float, float, float, float, floa
colorMul(float) ColorCG
colorAdd(ColorCG) ColorCG
colorMul(ColorCG) ColorCG
limit() ColorCG
setRed(float) ColorCG
setGreen(float) ColorCG
setBlue(float) ColorCG
setSpecular(float) ColorCG
setSpecial(float) ColorCG
setReflectionCoefficient(float ColorCG
setOpacity(float) ColorCG
getRed() float
getGreen() float
getBlue() float
getSpecular() float
getSpecial() float
getReflectionCoefficient() float
getOpacity() float
Quaternion
xq float
yq float
zq float
wq float
Quaternion(float, float, float, float
Quaternion(Quaternion
Quaternion(Vector4, float
Quaternion(Matrix)
getForward() Vector4
getBack() Vector4
getUp() Vector4
getDown() Vector4
getRight() Vector4
getLeft() Vector4
getX() float
getY() float
getZ() float
getW() float
Length() float
Normalized() Quaternion
Negative() Quaternion
Mul(float) Quaternion
Mul(Quaternion) Quaternion
Mul(Vector4) Quaternion
Sub(Quaternion) Quaternion
Add(Quaternion) Quaternion
QuaternionFromEuler(float, float, floaQuaternion
ToRotationMatrix() Matrix
Dot(Quaternion) float
PrimitiveObject
PrimitiveObject()
getColor(Vector4) ColorCG
getNormalAt(Vector4 Vector4
findIntersection(Ray) float
Sphere
center Vector4
trans Transform
radius float
color ColorCG
texture ImageCG
is_texture boolean
Sphere()
Sphere(Vector4, float, Transform, ColorC
Sphere(Vector4, float, Transform, ImageC
getCoord(float, float, float, float, floafloat
getSphereCenter() Vector4
getSphereRadius() float
getColor(Vector4) ColorCG
getNormalAt(Vector4) Vector4
findIntersection(Ray) float
Triangle
A Vector4
B Vector4
C Vector4
An Vector4
Bn Vector4
Cn Vector4
At Vector4
Bt Vector4
Ct Vector4
normal Vector4
color ColorCG
texture ImageCG
is_texture boolean
Triangle()
Triangle(Vector4, Vector4, Vector4, ColorC
Triangle(Vertex, Vertex, Vertex, ImageC
Triangle(Vertex, Vertex, Vertex, ColorC
getCoord(double, double, double, double, doubledouble
getColor(Vector4) ColorCG
getNormalAt(Vector4) Vector4
findIntersection(Ray float
Plane
normal Vector4
distance float
color ColorCG
Plane()
Plane(Vector4, float, ColorCG
getPlaneNormal() Vector4
getPlaneDistance() double
getColor(Vector4) ColorCG
getNormalAt(Vector4) Vector4
findIntersection(Ray float
Torus
K_EPSILON float
center Vector4
trans Transform
sweptRadius float
tubeRadius float
color ColorCG
texture ImageCG
is_texture boolean
Torus()
Torus(float, float, Transform, ColorC
Torus(float, float, Transform, ImageC
getCoord(float, float, float, float, floafloat
getSphereCenter() Vector4
getSphereRadius() float
getColor(Vector4) ColorCG
getNormalAt(Vector4) Vector4
findIntersection(Ray float
Edge
x float
xStep float
yStart int
yEnd int
texCoordX float
texCoordXStep float
texCoordY float
texCoordYStep float
oneOverZ float
oneOverZStep float
depth float
depthStep float
lightAmt float
lightAmtStep float
Edge(Interpolation, Vertex, Vertex, int
getX() float
getYStart() int
getYEnd() int
getTexCoordX() float
getTexCoordY() float
getOneOverZ() float
getDepth() float
getLightAmt() float
step() void
Source
Source()
getLightPosition() Vector4
setLightPosition(Vector4 void
getLightColor() ColorCG
setLightIntensive(Float void
setLightColor(ColorCG void
getLightIntensive() float
Light
position Vector4
color ColorCG
intensive float
Light()
Light(Vector4, ColorCG, float
setLightPosition(Vector4 void
setLightIntensive(Float void
setLightColor(ColorCG void
getLightPosition() Vector4
getLightIntensive() float
getLightColor() ColorCG
Input
keys boolean[]
mouseButtons boolean[]
mouseX int
mouseY int
mouseDragged(MouseEvent void
mouseMoved(MouseEvent void
mouseClicked(MouseEvent void
mouseEntered(MouseEvent void
mouseExited(MouseEvent void
mousePressed(MouseEvent void
mouseReleased(MouseEvent void
focusGained(FocusEvent void
focusLost(FocusEvent void
keyPressed(KeyEvent void
keyReleased(KeyEvent void
keyTyped(KeyEvent) void
getKey(int) boolean
getMouse(int) boolean
getMouseX() int
getMouseY() int
Transform
position Vector4
rotation Quaternion
scale Vector4
eulerRotation Vector4
Transform()
Transform(Vector4, Vector4
Transform(Vector4, Quaternion, Vector4, Vector
Transform(Transform
getTransformedPos() Vector4
getTransformedRot() Quaternion
setPos(Vector4) Transform
setScale(Vector4 Transform
rotate(Quaternion) Transform
rotateFromNull(float, float, float Transform
getTransformation() Matrix
getPosition() Vector4
getRotation() Quaternion
getScale() Vector4
getEulerRotation() Vector4
Vertex
position Vector4
texPosition Vector4
normal Vector4
Vertex(Vector4, Vector4, Vector4
getX() float
getY() float
getZ() float
getPosition() Vector4
setPosition(Vector4) void
getTexCoords() Vector4
getNormal() Vector4
transform(Matrix, Matrix Vertex
transformPos(Matrix) Vertex
perspectiveDivide(Vertex
triangleAreaTimesTwo(Vertex, VertexFloat
lerp(Vertex, float Vertex
isInsideView() boolean
get(int) float
Matrix
matrix float[][]
Matrix()
getM() float[][]
get(int, int) float
setM(float[][]) void
set(int, int, float void
createIdentity() Matrix
createScreenSpace(float, float Matrix
createMovement(float, float, float Matrix
createRotation(float, float, float, float Matrix
createScale(float, float, float Matrix
createPerspective(float, float, float, floaMatrix
createRotation(Vector4, Vector4 Matrix
createRotation(Vector4, Vector4, Vector4 Matrix
multiply(Vector4) Vector4
multiply(Matrix) Matrix
toString() String
Camera
Y_AXIS Vector4
transform Transform
projection Matrix
cameraRight Vector4
cameraDown Vector4
Camera(Matrix)
getCameraPosition() Vector4
getCameraDirection() Vector4
getCameraRight() Vector4
getCameraDown() Vector4
getViewProjection() Matrix
update(KeyEvent, doublevoid
move(Vector4, float) void
rotate(Vector4, float void
Model
positions List<Vector4>
texCoords List<Vector4>
normals List<Vector4>
tangents List<Vector4>
indices List<Integer>
Model()
calculateNormals() void
calculateTangents() void
getPositions(List<Vector4>
getTexCoords(List<Vector4>
getNormals() List<Vector4>
getTangents() List<Vector4>
getIndices() List<Integer>
OBJModel
positions List<Vector4>
texCoords List<Vector4>
normals List<Vector4>
indices List<OBJIndex>
hasTexCoords boolean
hasNormals boolean
OBJModel(String)
RemoveEmptyStrings(String[]String[]
toIndexedModel() Model
ParseOBJIndex(String OBJIndex
ImageJPanel
width int
height int
image Image
filename File
ImageJPanel(int, int
UploadImage(File) void
paintComponent(Graphics)void
Ray
origin Vector4
direction Vector4
Ray()
Ray(Vector4, Vector4
getRayOrigin() Vector4
getRayDirection() Vector4
MainFrame
jButton1 JButton
jList1 JList<String>
jScrollPane1JScrollPane
MainFrame()
main(String[]) void
initComponents() void
RayTracing
NearestObjectIndex(ArrayList<Float> int
RefractVector(Vector4, Vector4, Float Vector4
ReflectVector(Vector4, Vector4 Vector4
getColor(Vector4, Vector4, List<PrimitiveObject>, int, int, List<Source>, float, float, i ColorCG
norm_coords(int, int, float, int, int, floa float[]
renderRayTracing(RenderSceneTriangle, int, int, Camera, List<PrimitiveObject>, List<Source>, float, void
Solver
EQN_EPS float
isZero(Float) boolean
solve2(List<Float>,list<Float>
solve3(List<Float>,list<Float>
solve4(List<Float>,list<Float>
CG_editor
display Launcher
Render(Launcher, int, intvoid
main(String[]) void
Package exceptior
Package enums
Main