Zuo Wang

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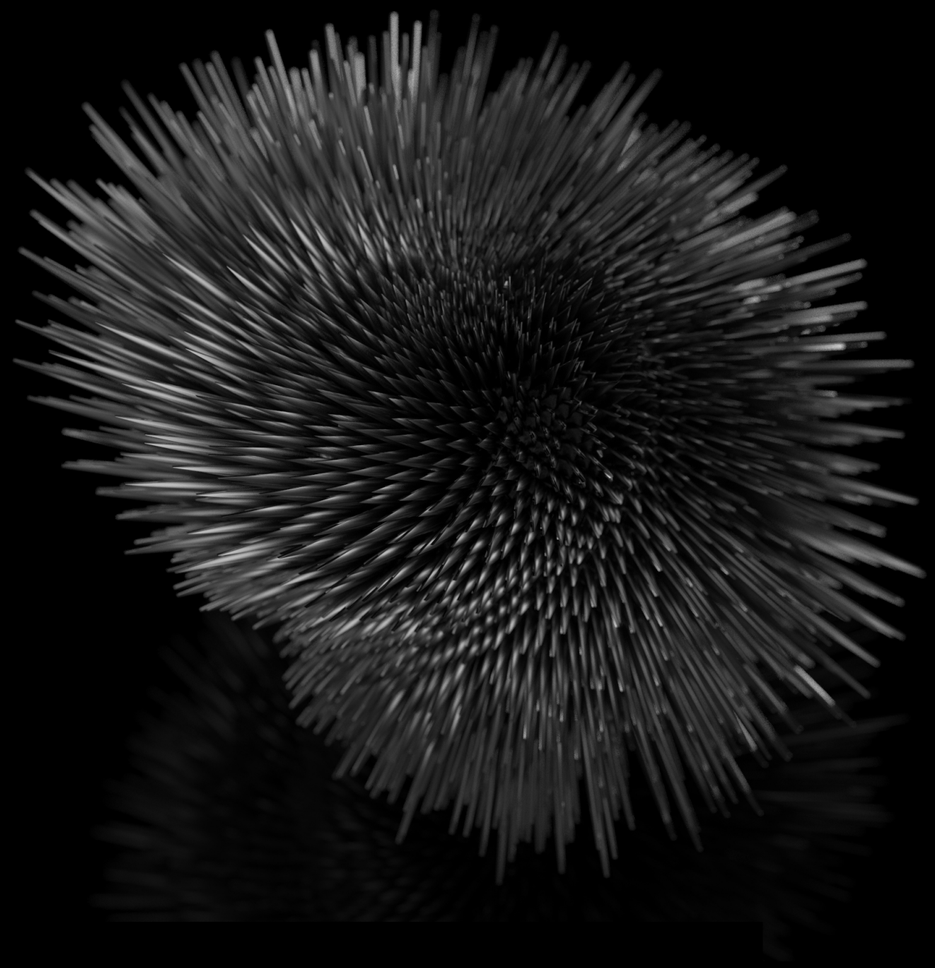
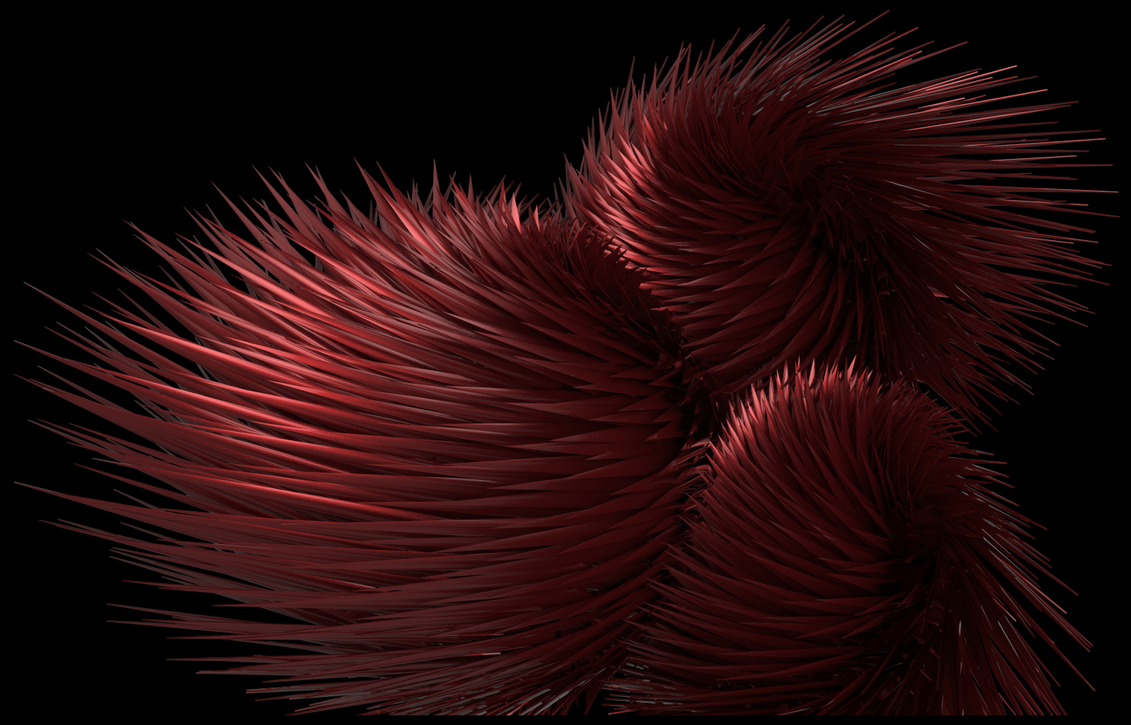
1



<u>Python projects</u>
Software applied: Rhino
Type: Individual work except number 2
Description: By using python scripts, single lines or shapes can be developed into complex meshes.



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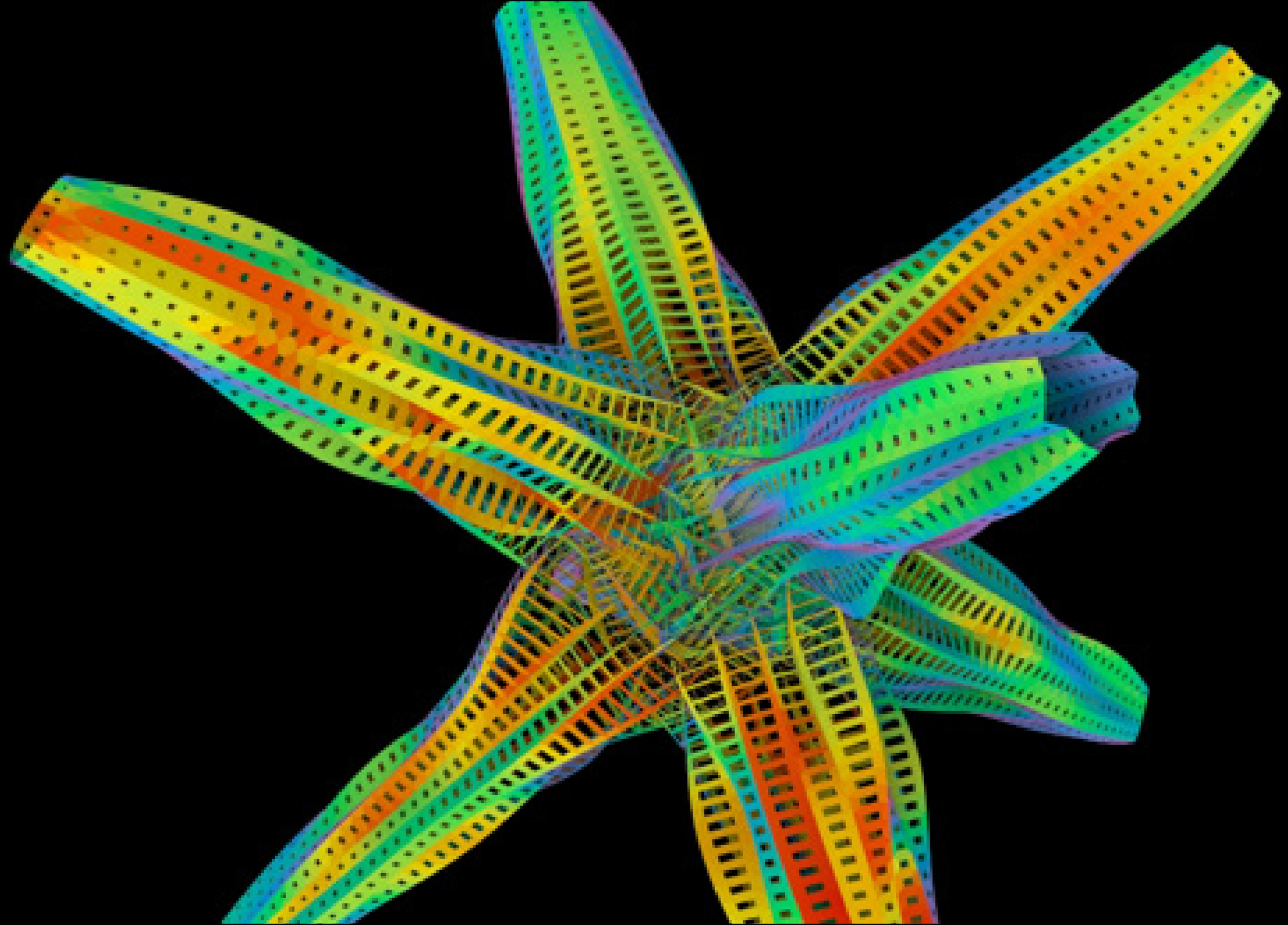

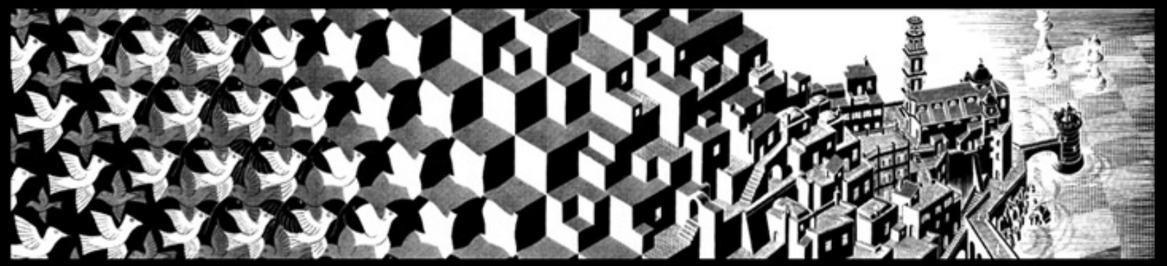

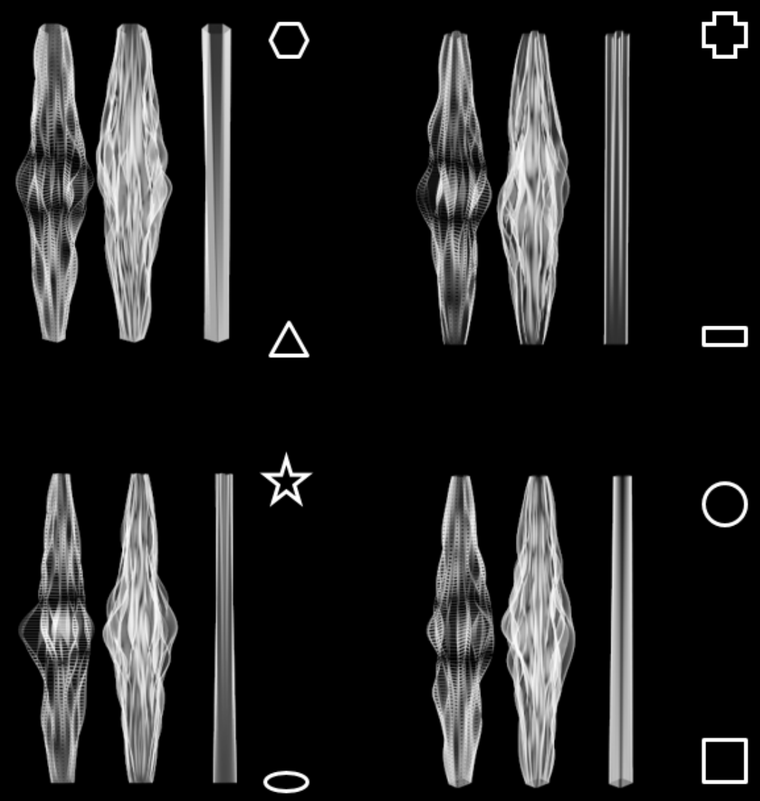

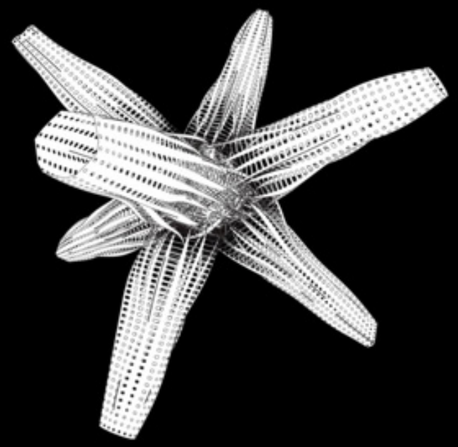

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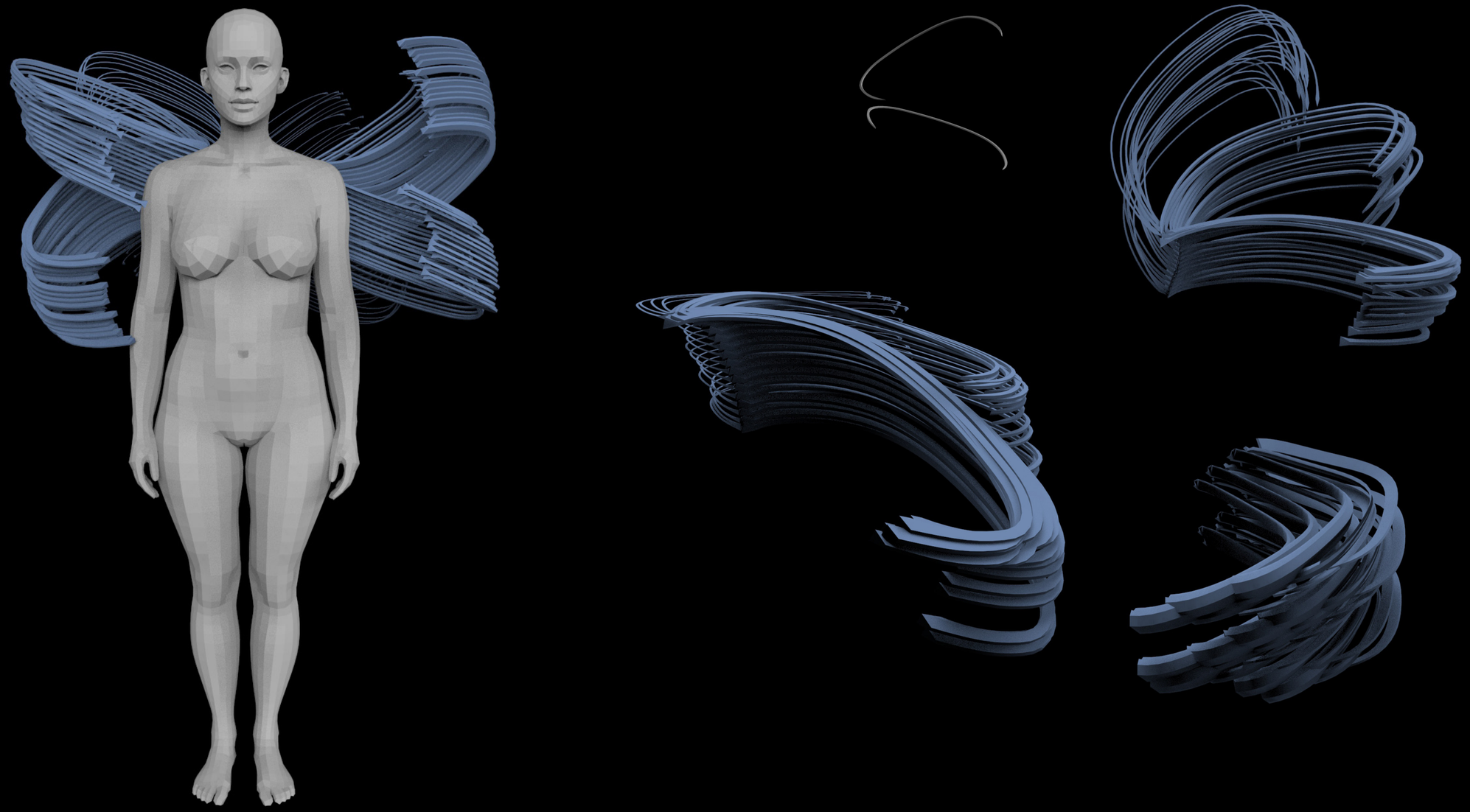


4

Add a Frame

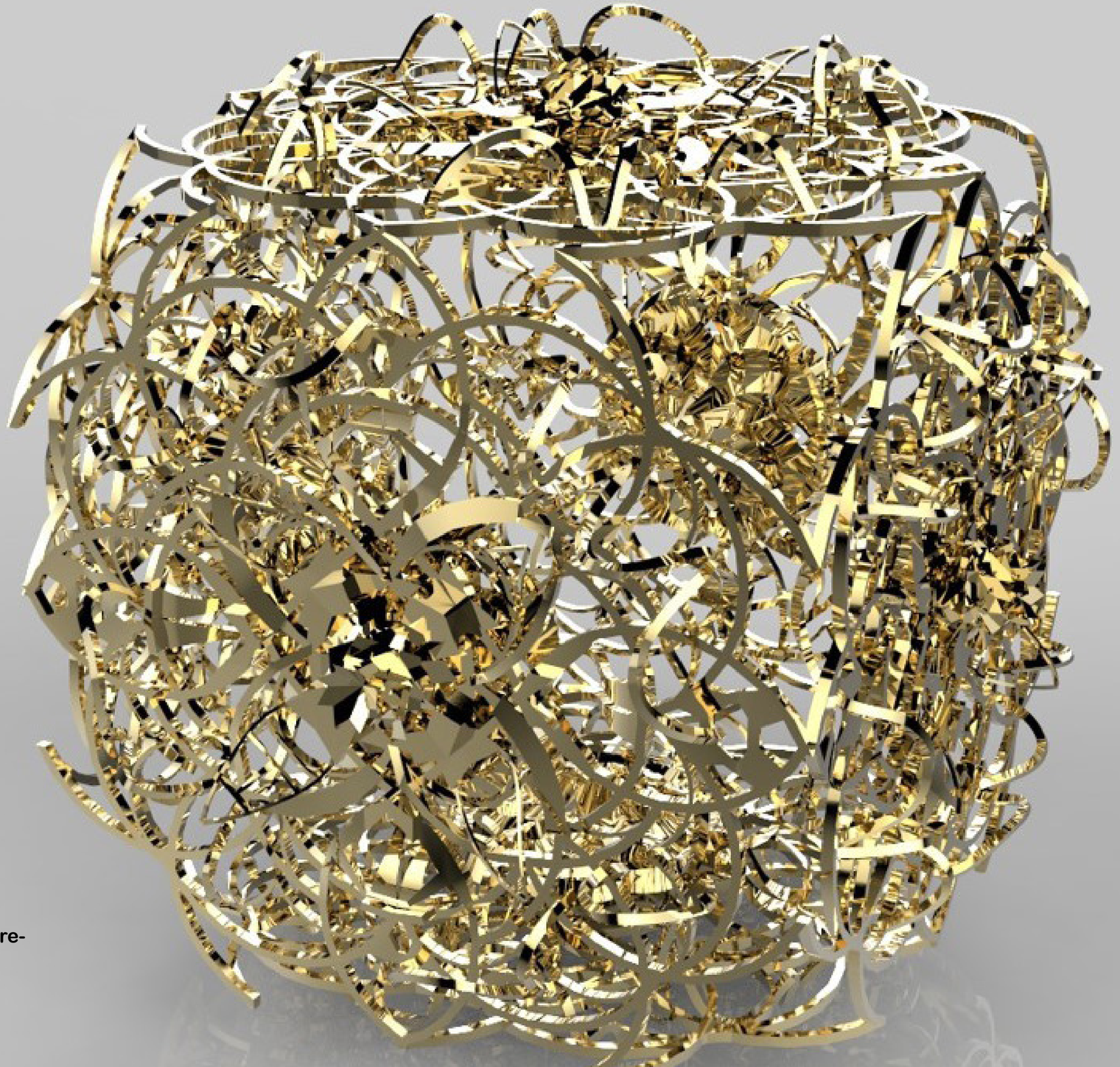
```
import rhinoscriptsyntax as rs
import random

def main():

    crv=rs.GetObject('pick a curve object',4)

    crvdom=rs.CurveDomain(crv)

    step=crvdom[1]/100

    bag=[]

    for i in range(100):

        R1=crvdom[0]+i*step

        perpframe=rs.CurvePerpFrame(crv,R1)

        #tan=rs.VectorScale(tan,random.uniform(100,500))

        #stpt=rs.EvaluateCurve(crv,R1)

        #edpt=rs.VectorAdd(stpt,tan)

        bag.append(rs.AddCircle(perpframe,random.uni-
form(50,200)))

        #rs.ObjectColor(tancrv,[255*random.random(),255*ran-
dom.random(),255*random.random()])

    rs.AddLoftSrf(bag)

main()
```

Make a Tree

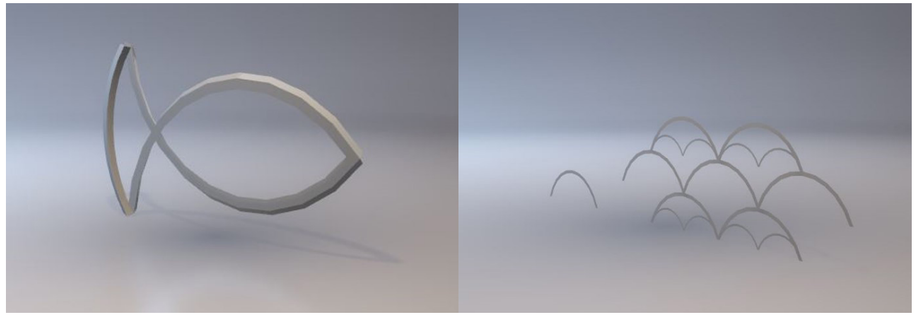
```
import rhinoscriptsyntax as rs
import random

def main():

    lines=rs.GetObjects('pick a crv as the tree body',4)

    for i in range(4):

        newcrvs=makebranch(lines)

        lines=newcrvs[:]

def makebranch(crvs):
    bag=[]

    for j in range(len(crvs)):

        midpt=rs.CurveMidPoint(crvs[j])

        edpt=rs.CurveEndPoint(crvs[j])

        crvdom=rs.CurveDomain(crvs[j])

        perpframe=rs.CurvePerpFrame(crvs[j],crvdom[1])

        circle=rs.AddCircle(perpframe,rs.CurveLength(crvs[j])/3)

        divpts=rs.DivideCurve(circle,10)

        rs.DeleteObject(circle)

        midbranchpt=rs.VectorAdd(midpt,edpt)
        midbranchpt=rs.VectorDivide(midbranchpt,2)

        for i in range(len(divpts)):

            bag.append(rs.AddCurve([midpt,mid-
branchpt,divpts[i]]))

    return bag

main()
```

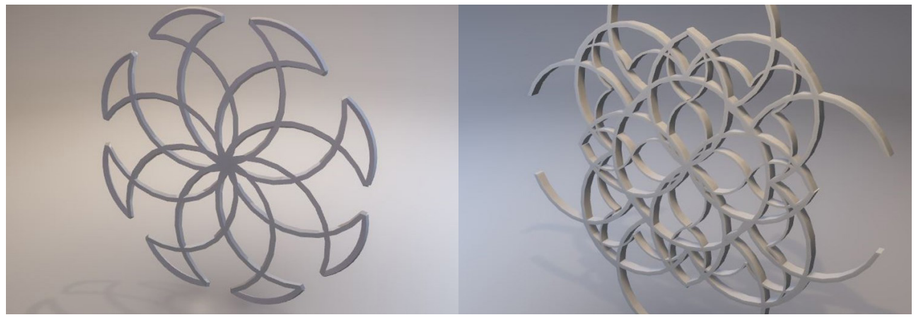
Make a Spring

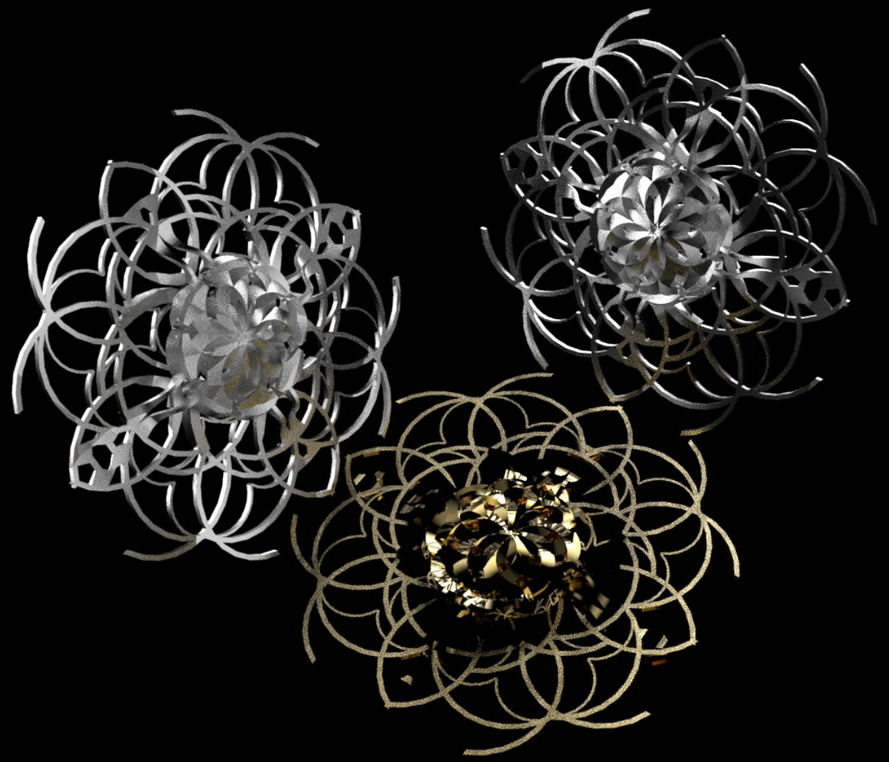
```
import rhinoscriptsyntax as rs
import random

def main():

    crv=rs.GetObject('pick a curve object',4)

    crvdom=rs.CurveDomain(crv)

    step=crvdom[1]/1000

    bag=[]

    for i in range(1000):

        R1=crvdom[0]+i*step

        perpframe=rs.CurvePerpFrame(crv,R1)

        axis=perpframe[3]

        circle=rs.AddCircle(perpframe,100)


        circle=rs.RotateObject(circle,perpframe[0],i*15,axis)

        #rs.AddPoint(rs.CurveStartPoint(circle))

        bag.append(rs.CurveStartPoint(circle))

        rs.DeleteObject(circle)

    rs.AddCurve(bag)

main()
```

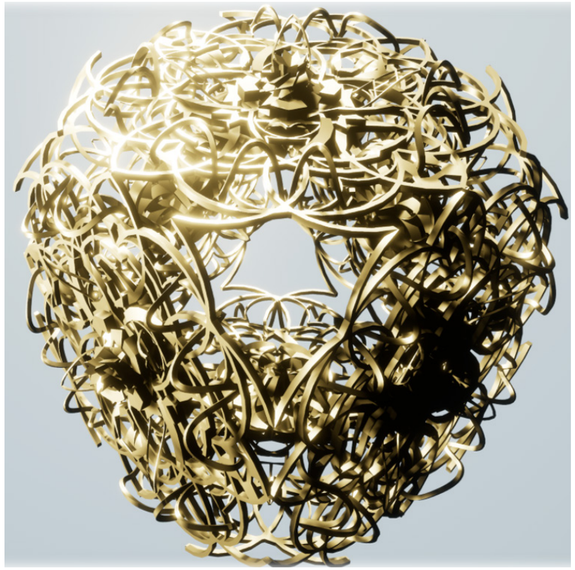
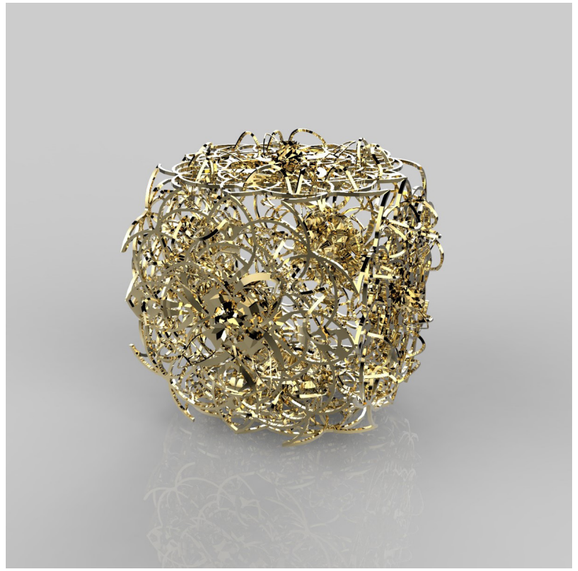
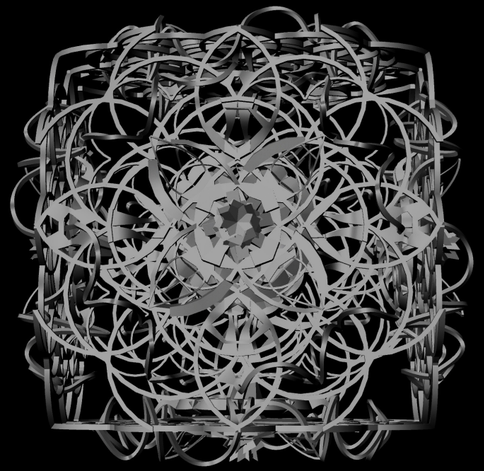
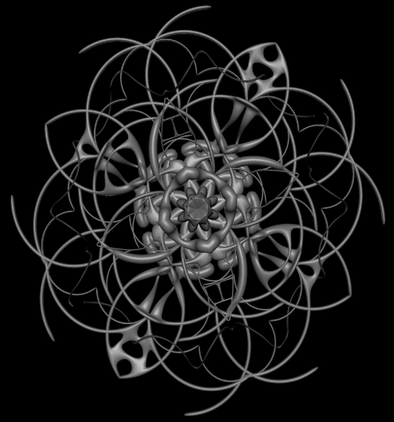
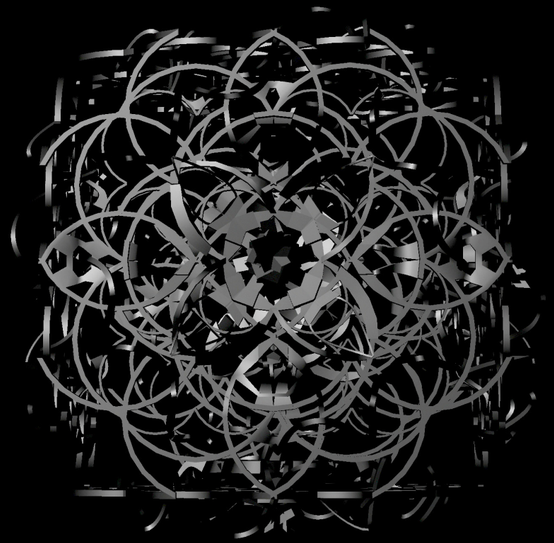


Lotus
Software applied: Maya, Keyshot, Unreal Engine
Type: Individual work
Description: Idea first came from fish scales and lotus, and then one facet was created by using the same shapes over and over again. Unreal Engine was applied afterward.





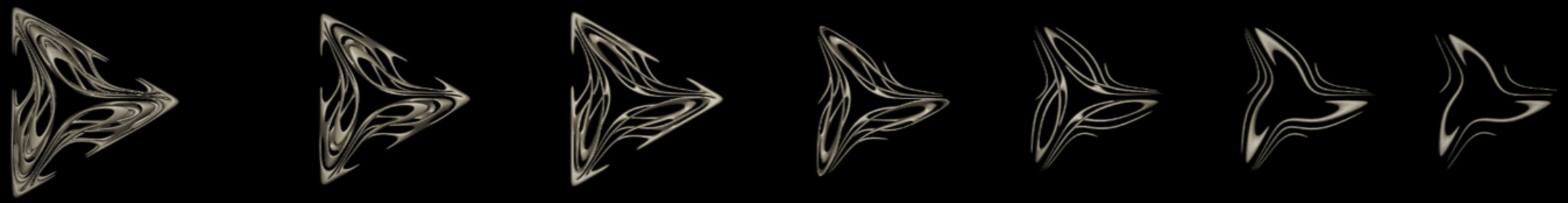


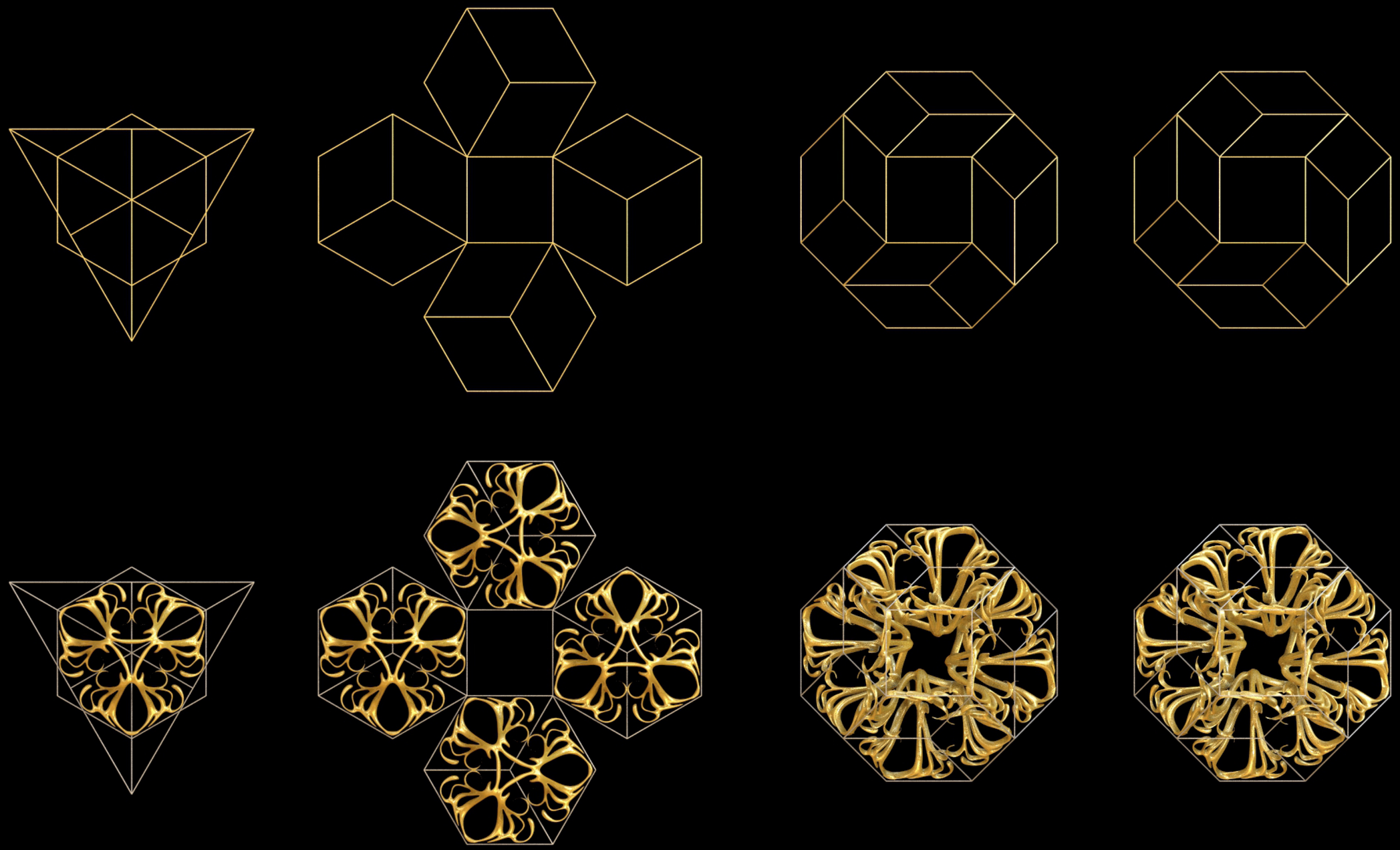






Shape of water

Software applied: Maya, Keyshot
Type: Group work
Contribution: Modling
Description: Based on the Chinese characters of “water” along the dynasties to illustrate the approximation of the shape of water.

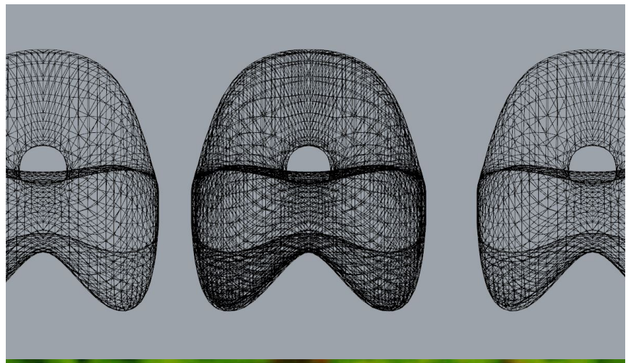
Water





Chairs (3 iterations)
Software applied: Maya, Rhino, Keyshot
Type: Individual work
Description: Frist two iterations are based on teeth, designed for children.

1



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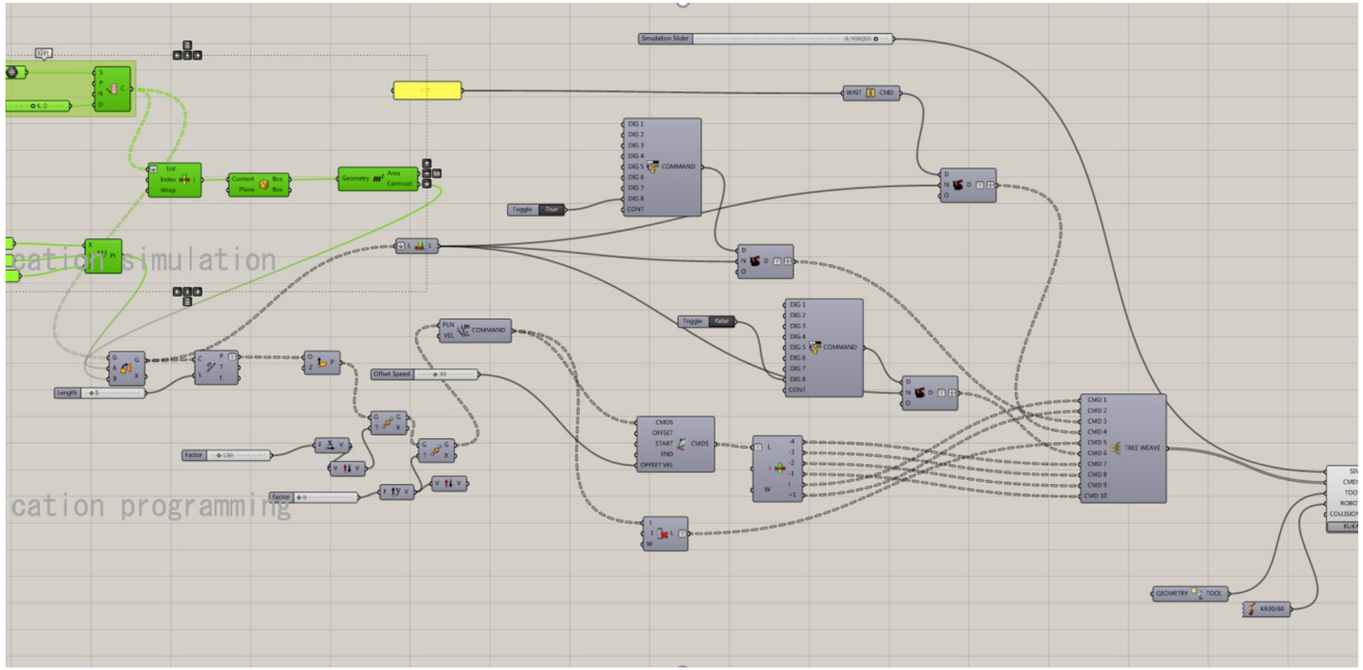

Robotics
Software applied: Rhino, Grasshopper
Type: Group work
Description: Munipulation of 3D-printing robotics to print a real-life chair.