

几何体维度矩阵

Out[*]=

{8, 12, 11, 9, 19, 20, 1, 12, 0, 18}

In[*]:= **Sort**[{8, 12, 11, 9, 19, 20, 1, 12, 0, 18}]
|排序

Out[*]=

{0, 1, 8, 9, 11, 12, 12, 18, 19, 20}

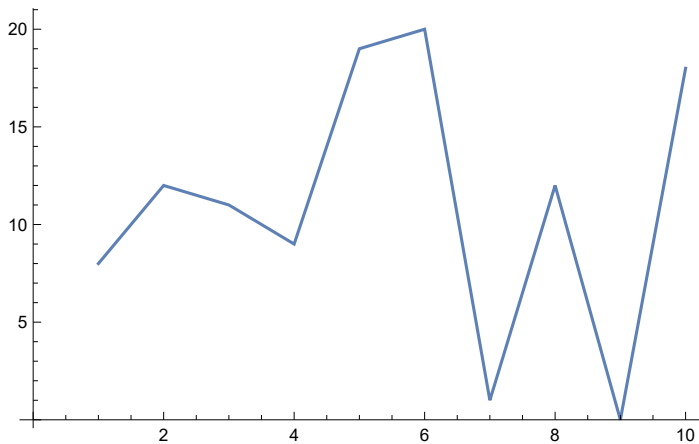
In[*]:= **Mean**[{8, 12, 11, 9, 19, 20, 1, 12, 0, 18}]
|平均值

Out[*]=

11

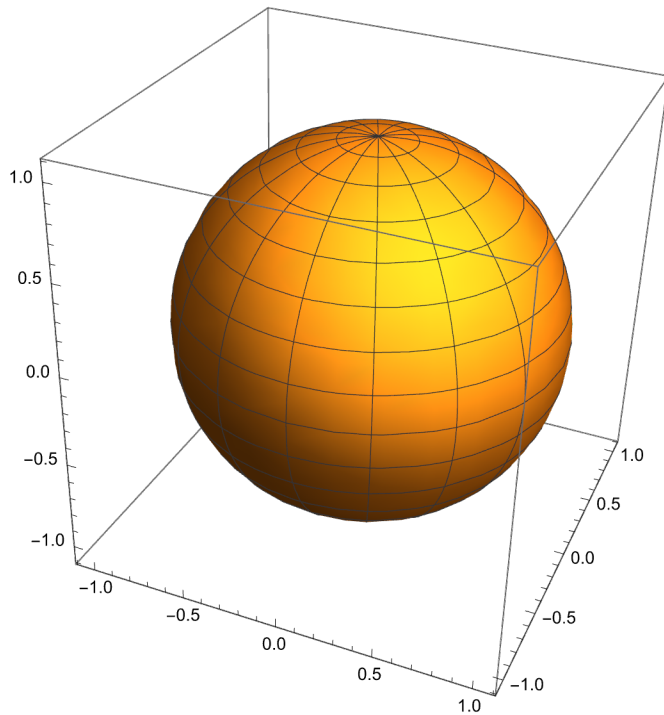
In[*]:= **ListLinePlot**[{8, 12, 11, 9, 19, 20, 1, 12, 0, 18}]
|绘制点集的线条

Out[*]=



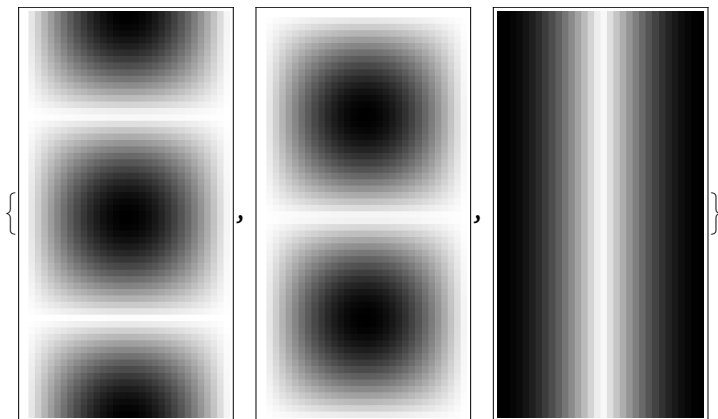
```
In[*]:= sphere = {Cos[u] Sin[v], Sin[u] Sin[v], Cos[v]};
               |余弦 |正弦 |正弦 |余弦
ParametricPlot3D[sphere, {u, 0, 2  $\pi$ }, {v, 0,  $\pi$ }]
|绘制三维参数图
```

Out[*]=



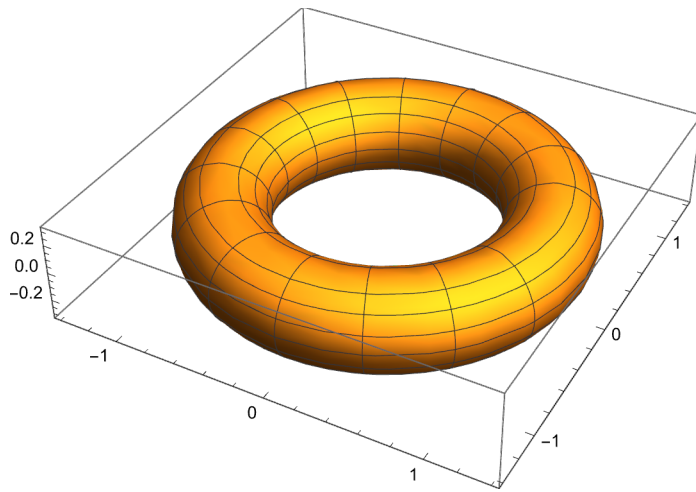
```
In[*]:= ArrayPlot[Table[#, {u, 0, 2  $\pi$ , 0.1}, {v, 0,  $\pi$ , 0.1}]] & /@ sphere
|图示数组 |表格
```

Out[*]=



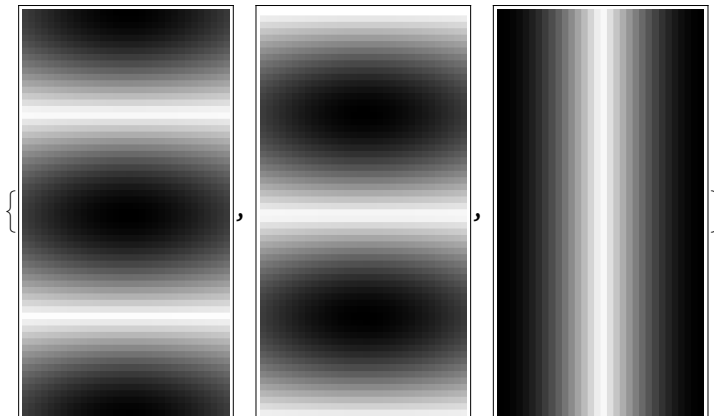
```
In[ ]:= torus = {Cos[u] (1 + 0.3 Sin[v]), Sin[u] (1 + 0.3 Sin[v]), 0.3 Cos[v]};
           余弦      正弦      正弦      正弦      余弦
ParametricPlot3D[torus, {u, 0, 2 π}, {v, 0, 2 π}]
           绘制三维参数图
```

Out[]:=



```
In[ ]:= ArrayPlot[Table[#, {u, 0, 2 π, 0.1}, {v, 0, π, 0.1}]] & /@ torus
           图示数组      表格
```

Out[]:=

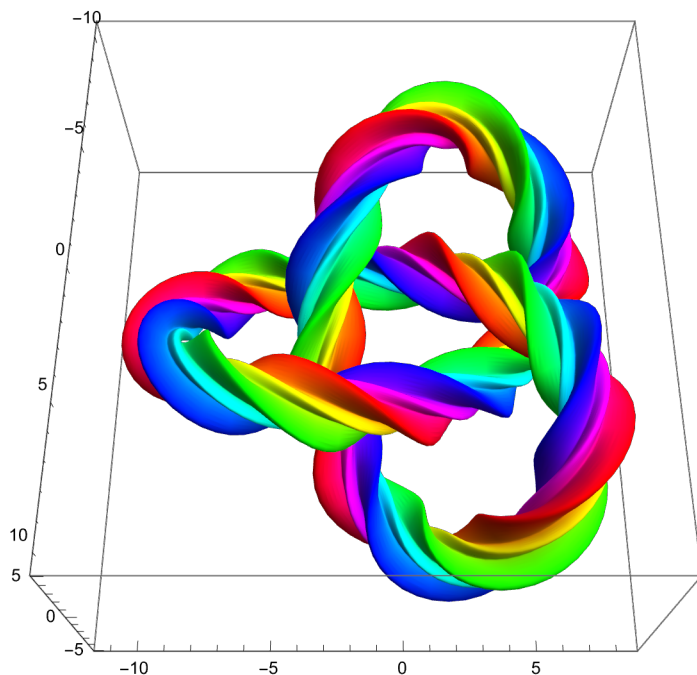


```

In[ ]:= c = KnotData[{3, 1}, "SpaceCurve"];
          | 纽结数据
n = Simplify@FrenetSerretSystem[c[u], u][[-1, 2 ;;]];
          | 化简      | 弗莱纳系统
trefoil :=
  {3 c[u] + RotationMatrix[7 u].{Cos[v], Sin[v]}.n (1 + .3 Cos[3 v] + 0.3 Cos[6 v])}
          | 旋转矩阵      | 余弦      | 正弦      | 余弦      | 余弦
ParametricPlot3D[trefoil, {u, 0, 2 Pi}, {v, 0, 2 Pi},
  | 绘制三维参数图      | 圆周率      | 圆周率
  PlotPoints -> 50, ColorFunction -> (Hue[#5] &), Mesh -> None]
  | 绘图点      | 颜色函数      | 色相      | 网格      | 无

```

Out[]:=

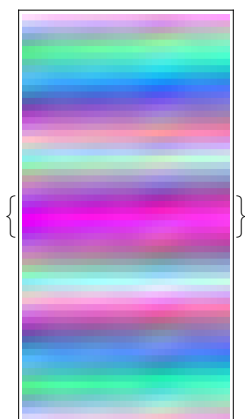


```

In[ ]:= ArrayPlot[Table[#, {u, 0, 2 Pi, 0.1}, {v, 0, Pi, 0.1}]] & /@ trefoil
          | 图示数组      | 表格

```

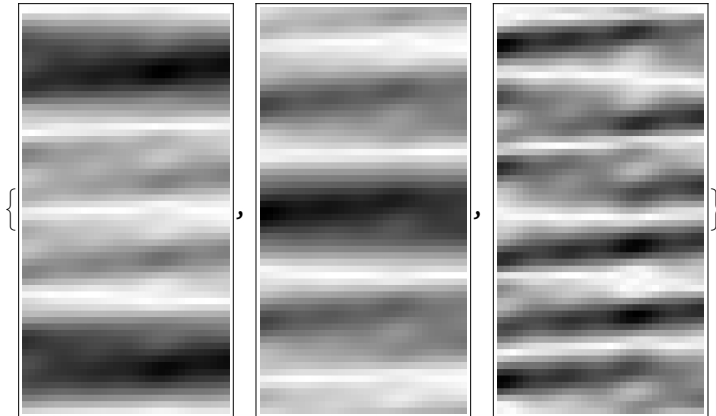
Out[]:=



```
In[ ]:= ArrayPlot[Table[#, {u, 0, 2  $\pi$ , 0.1}, {v, 0,  $\pi$ , 0.1}]] & /@ trefoil[[1]]
```

[图示数组](#) [表格](#)

```
Out[ ]:=
```



```
In[ ]:= dataPts = Table[trefoil[[1]], {u, 0, 2  $\pi$ , 0.05}, {v, 0, 2  $\pi$ , 0.2}];
```

[表格](#)

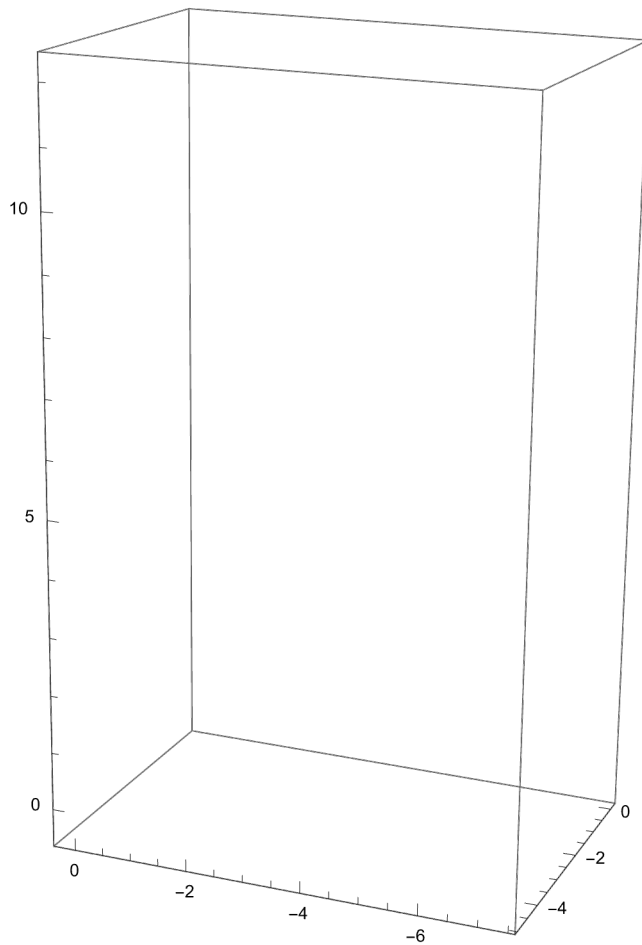
```
ParametricPlot3D[dataPts[[Round[u, 0.1] + 1, Round[v, 0.1] + 1]], {u, 0, 2  $\pi$ }, {v, 0,  $\pi$ }]
```

[绘制三维参数图](#)

[舍入](#)

[舍入](#)

```
Out[ ]:=
```

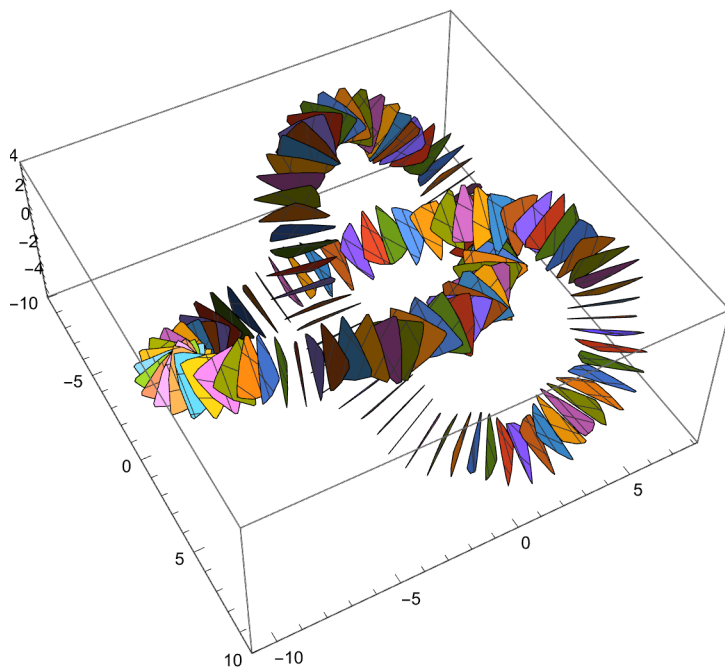


In[]:= **ListPlot3D[dataPts, InterpolationOrder → 4]**

点集三维图

内插阶数

Out[]:=

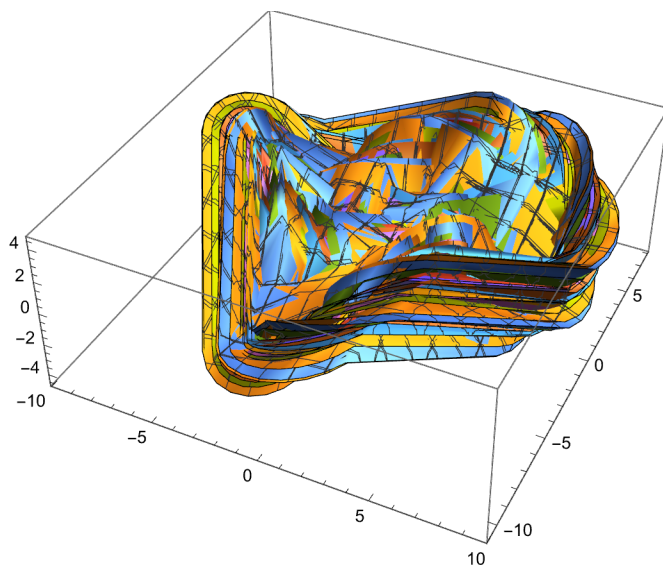


In[]:= **ListPlot3D[dataPts^T, InterpolationOrder → 3]**

点集三维图

内插阶数

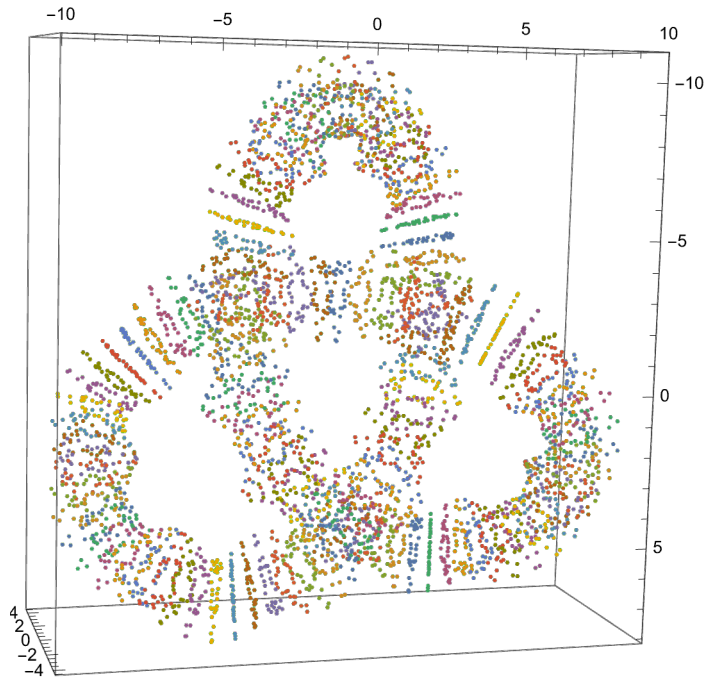
Out[]:=



```
In[ ]:= ListPointPlot3D[dataPts]
```

点集的三维散点图

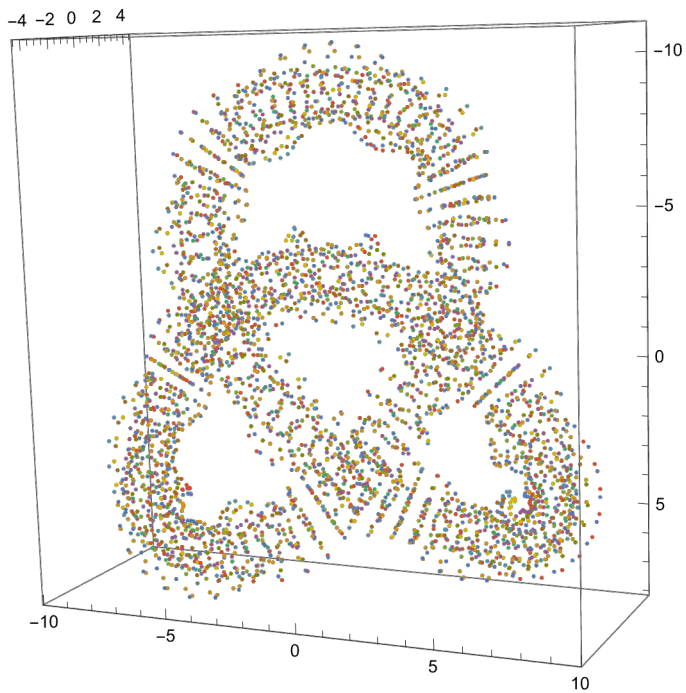
```
Out[ ]:=
```



```
In[ ]:= ListPointPlot3D[dataPts^T]
```

点集的三维散点图

```
Out[ ]:=
```



```
In[ ]:= ListPointPlot3D[Flatten[dataPts, 1]]
```

点集的三维散点图 压平

```
Out[ ]:=
```

