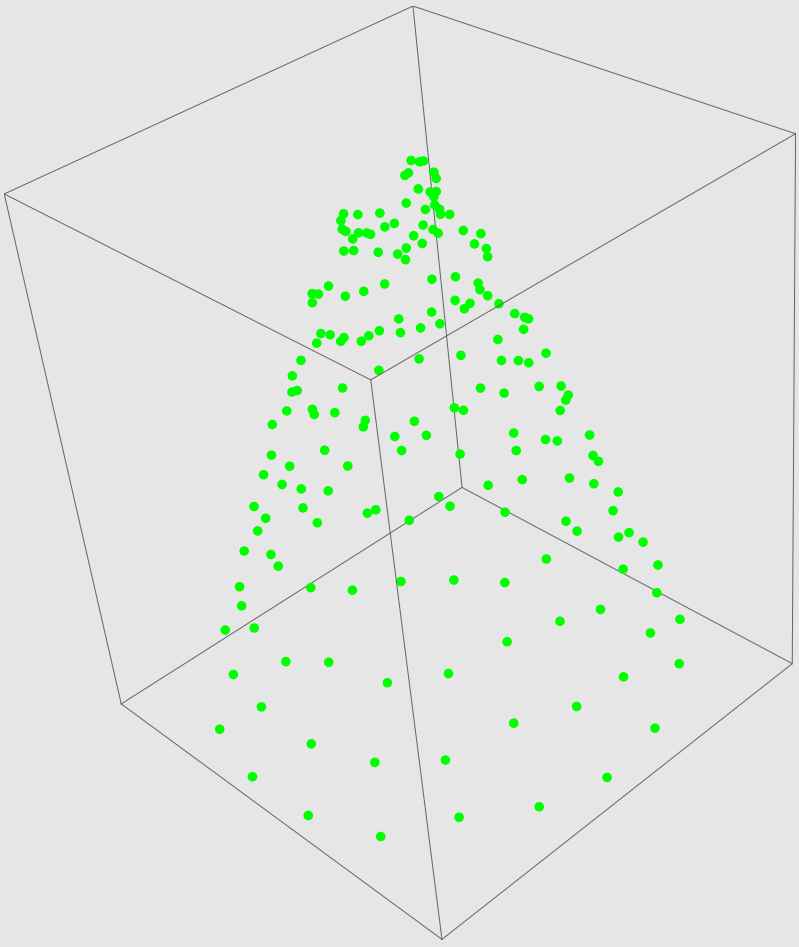
HW 3 : Least Squares B - splines

Find a least squares fit to the given data set. Then experiment with two more interesting sets. Find an automated way to assign knot sequence and data point parameters.

```
data = Table[{(1 + t) * Cos[t^1.3], (1 + t) * Sin[t^1.3],
    t^1.3 + 3 * RandomReal[]}, {t, 1, 20, 0.1}];
Graphics3D[{Green, PointSize[Medium], Point[data]}]
```



Here is a sample B - spline curve:

```
knot[n_, ll_] := Join[Table[0, {i, 0, n}],
   Table[i / ll, {i, 1, ll - 1}], Table[1, {i, 0, n}]];

n = 4; (*degree *)
ll = 10; (* number of intervals *)
knot[n, ll];
d = Table[{Sin[t], Cos[t], t / 5}, {t, 1, n + ll}];

Graphics3D[{{Thick, BSplineCurve[d, SplineKnots → knot[n, ll]]},
  Green, Line[d], Red, Point[d]}]
```