In[114]:=
```
ClearAll
```

Out[114]=
```
ClearAll
```

In[117]:=
```
u = RandomReal[{0, 1}, 60];
```

In[115]:=
```
b1 = RandomReal[{0, 5}]
b2 = RandomReal[{0, 5}]
```

Out[115]=
```
2.53186
```

Out[116]=
```
1.30272
```

In[118]:=
```
u1 = u[[2 ;; 51]]; u2 = u[[1 ;; 50]];
y = b1 * u1 + b2 * u2 + RandomReal[{0, 1}, 50];
absError[b1_, b2_] :=
 Total[Abs[y - b1 * u1 - b2 * u2]]
```

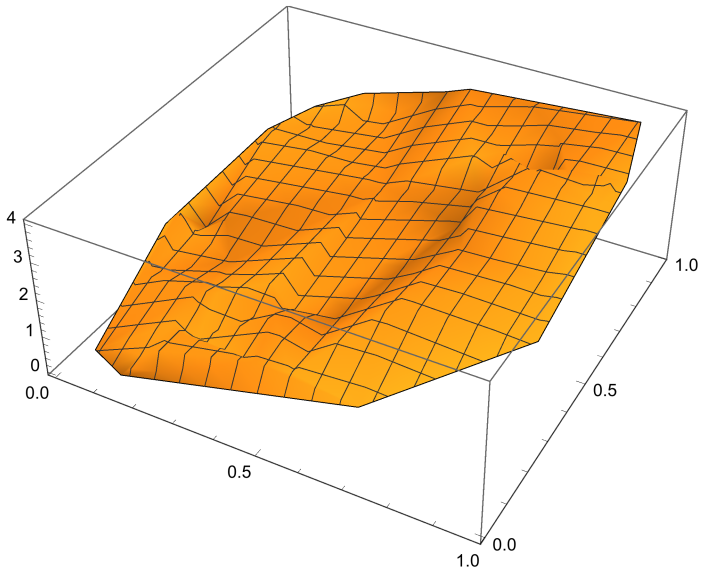
In[121]:=
```
FindMinimum[absError[x1, x2], {x1, 0}, {x2, 0}]
```

FindMinimum ::lstol :
The line search decreased the step size to within the tolerance specified by AccuracyGoal and PrecisionGoal but was unable to find a sufficient decrease in the function . You may need more than MachinePrecision digits of working precision to meet these tolerances . >>

Out[121]=
```
{12.6027, {x1 → 2.58259, x2 → 2.04796}}
```

In[124]:=
```
l1 = ListPlot3D[{u1, u2, y}^T]
```

Out[124]=



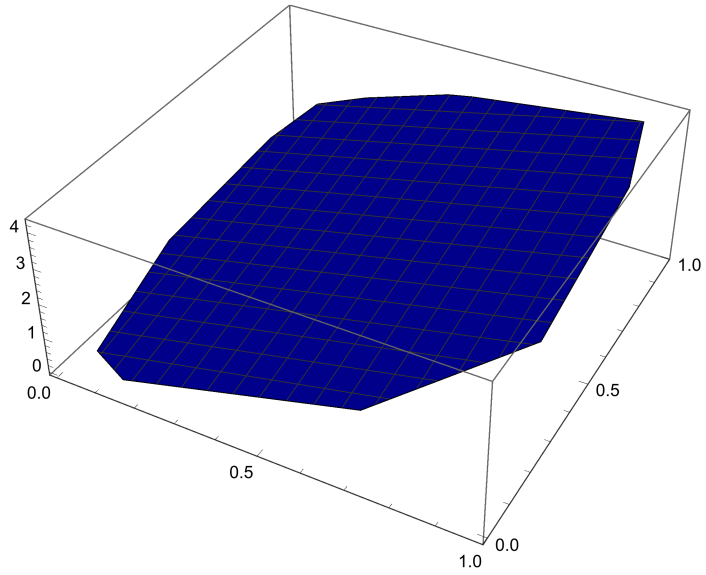

```
x1 = 2.582585735894606`; x2 = 2.0479580279393046` ;
```

Out[126]=
```
2.04796
```

In[128]:=
```
y2 = x1 * u1 + x2 * u2;
```

In[130]:=
```
l2 = ListPlot3D[{u1, u2, y2}^T, PlotStyle → Blue]
```

Out[130]=



In[131]:=
```
Show[{l1, l2}]
```

Out[131]=