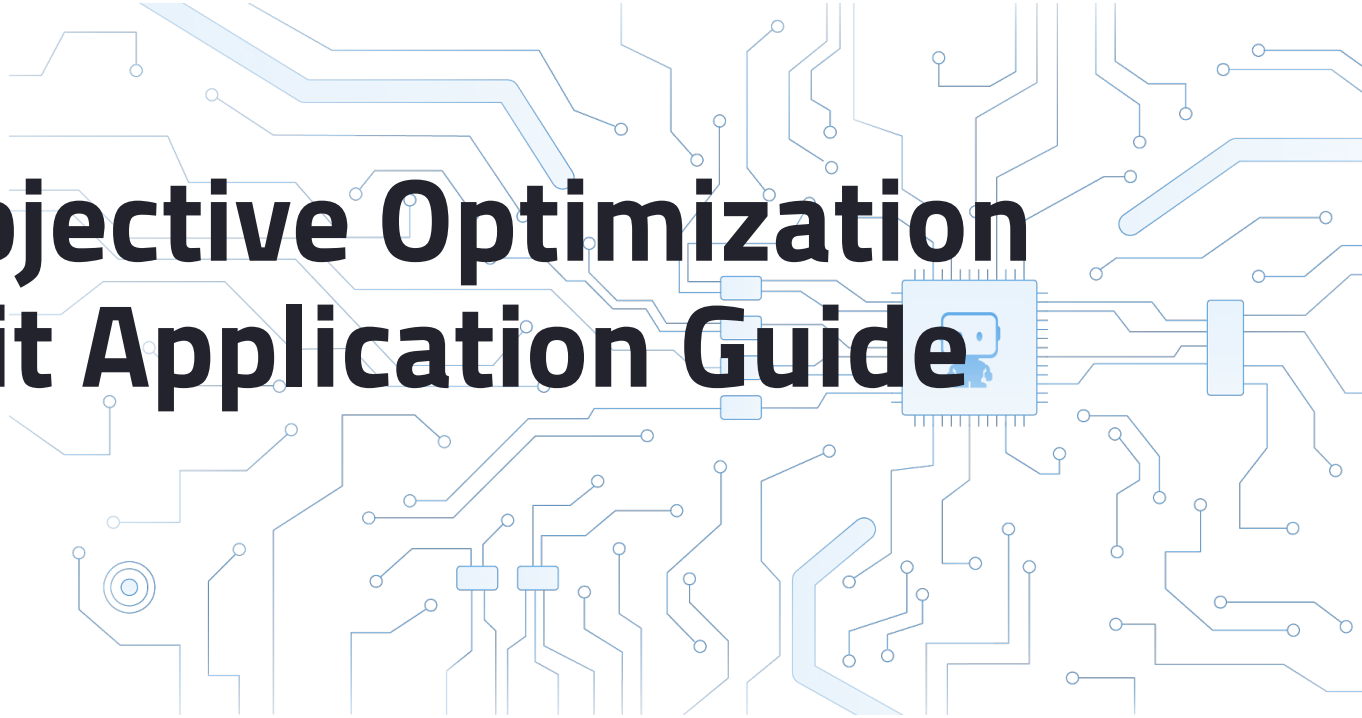
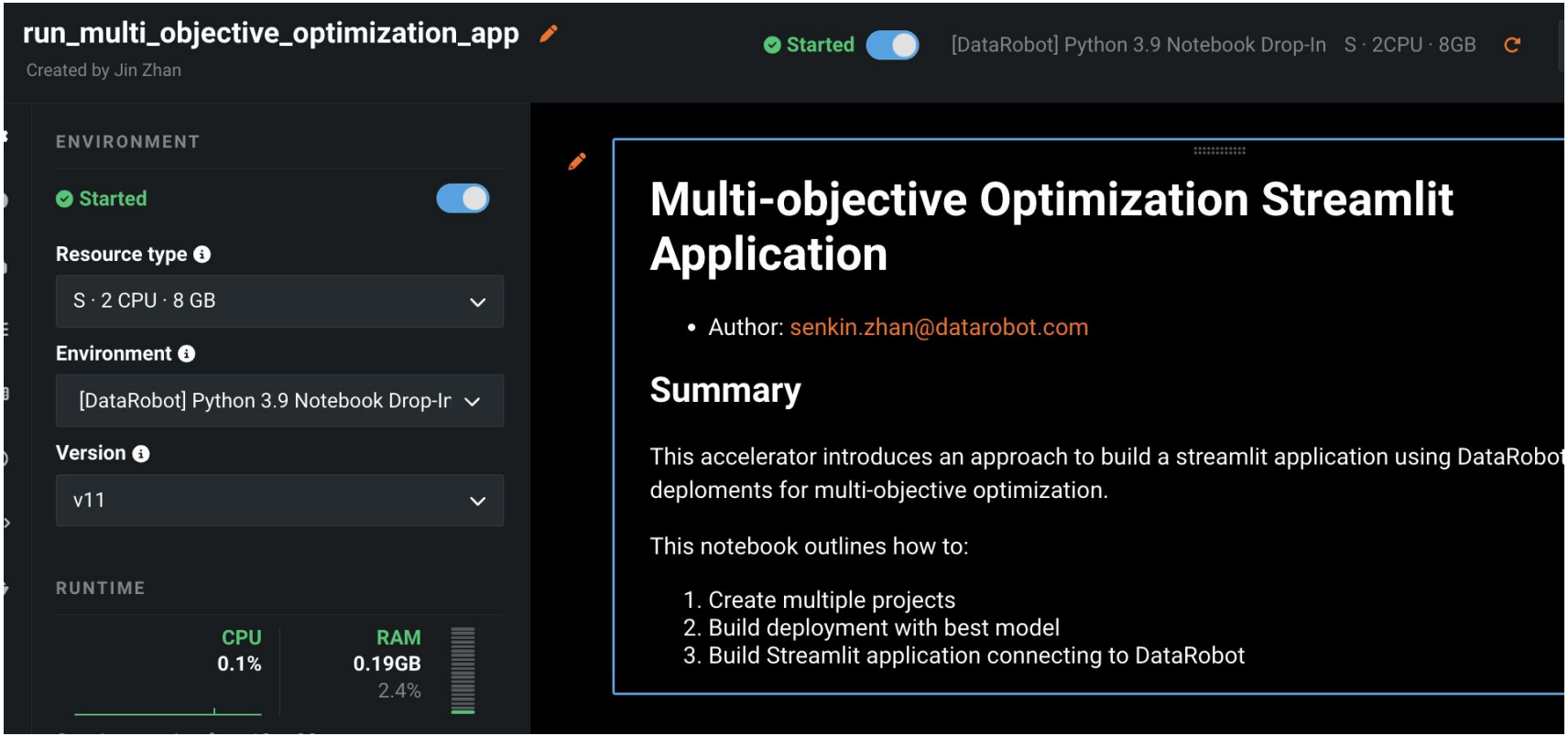
Multi Objective Optimization Streamlit Application Guide



DataRobot

DR Notebook Upload



Bind variables then run DR notebook

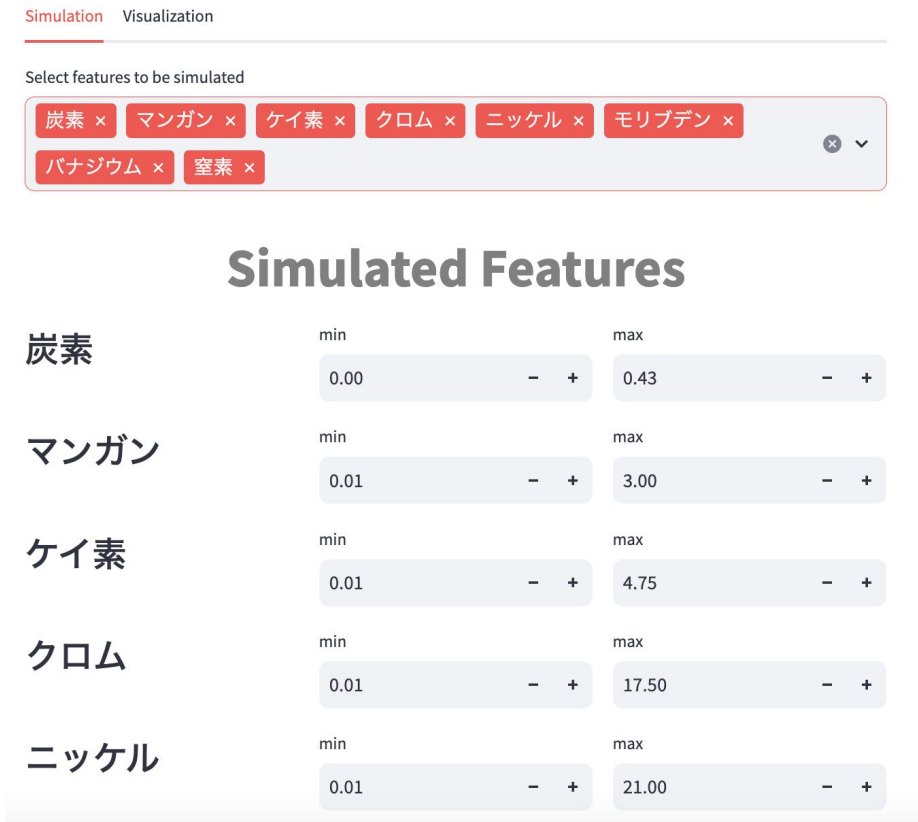
Bind variables

Cell heading

```
# DataRobot Input Path
input_path = './multi-objective-optimization/'

# credentials
API_URL = '<INSERT Deployment API URL>'
DATAROBOT_API_TOKEN = '<INSERT YOUR DataRobot API Token>'
DATAROBOT_KEY = '<INSERT DataRobot Key>'

credentials = [API_URL,DATAROBOT_API_TOKEN,DATAROBOT_KEY]
with open(input_path+'credentials.pickle', mode='wb') as fo:
    pickle.dump(credentials, fo)

# If use groupkfold input group column ["Group_ID"], if use randomkfold input False
group_col = False

# File name, default is japanese version, if use english input steel_strength_en
file_name = 'steel_strength_jp.csv'

# Targets(multiple objective), default is japanese version, if use english input ['Yi
targets = ['降伏強度','引張強度','平均強度']

# Optimization Directions, choose minimize or maximize,max 30 targets
directions = ['maximize','maximize','maximize']

# Streamlit App name
app_name = "multi-objective-optimization-demo"
```

- Setup Bind variables
- Run notebook

Streamlit - Simulation

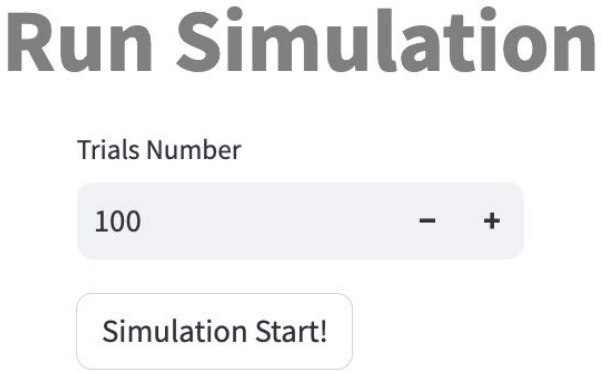


- Select the features need to be simulated
- Input each features' values range(default:min to max)

Streamlit - Simulation

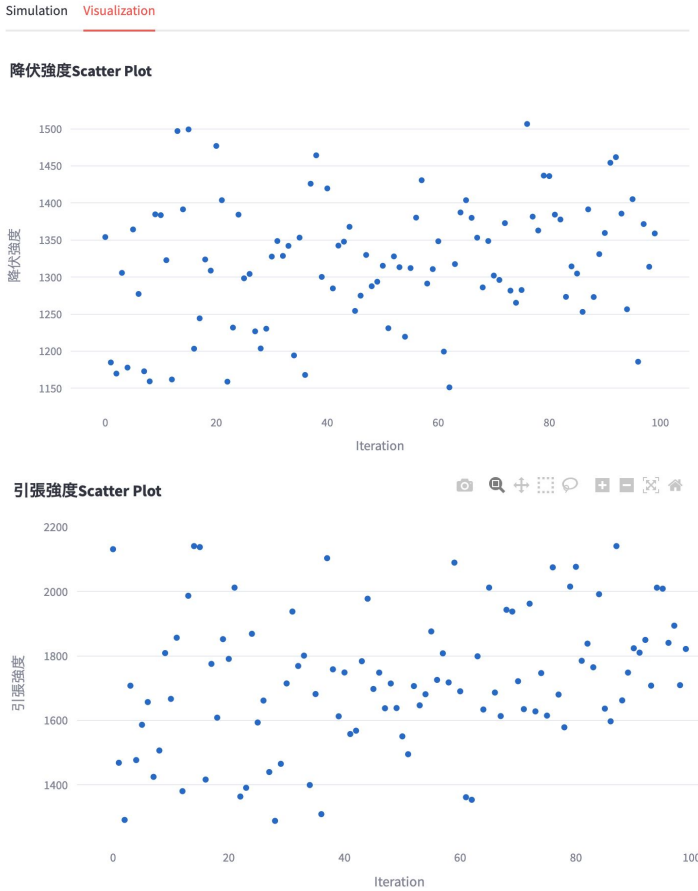
- Input dropped features' constant values(default:mean)

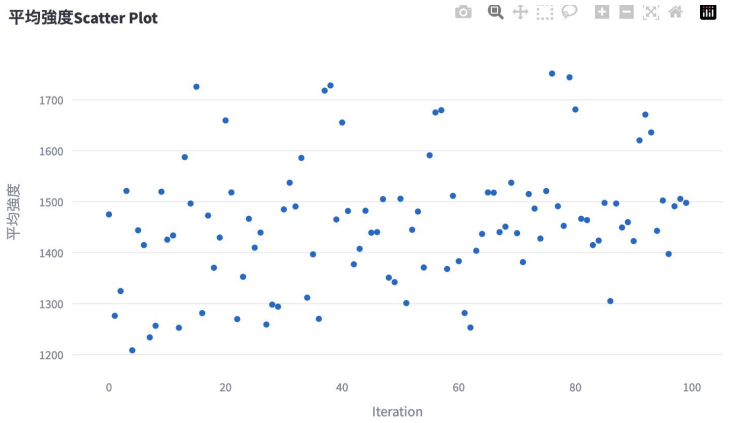
Streamlit - Simulation



- Input trials number(default:100)
- Click [Simulation Start!]

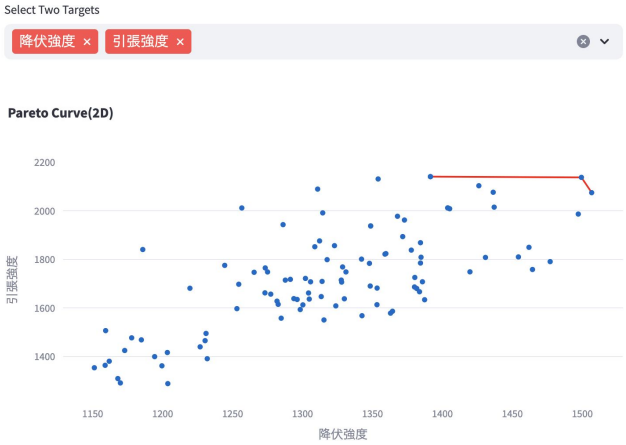
Streamlit - Visualization

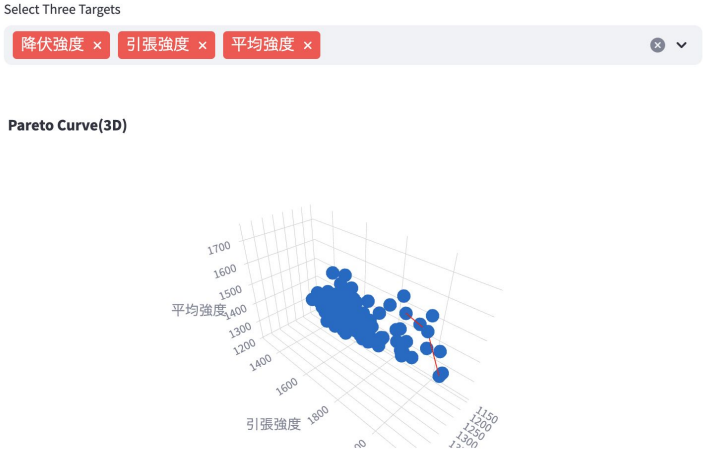




- Scatter Plot of trials interaction and each target

Streamlit - Visualization





	タングステン	アルミニウム	チタン	best_trial
0	0.1613	0.2391	0.3109	1
1	0.1613	0.2391	0.3109	1
2	0.1613	0.2391	0.3109	1
3	0.1613	0.2391	0.3109	1
4	0.1613	0.2391	0.3109	0
5	0.1613	0.2391	0.3109	0
6	0.1613	0.2391	0.3109	0
7	0.1613	0.2391	0.3109	0
8	0.1613	0.2391	0.3109	0
9	0.1613	0.2391	0.3109	0

Download data as CSV

- Two targets combination(2D Pareto Curve)
- Three targets combination (3D Pareto Curve)
- Optimized samples will be showed on top(best_trial=1)

DataRobot