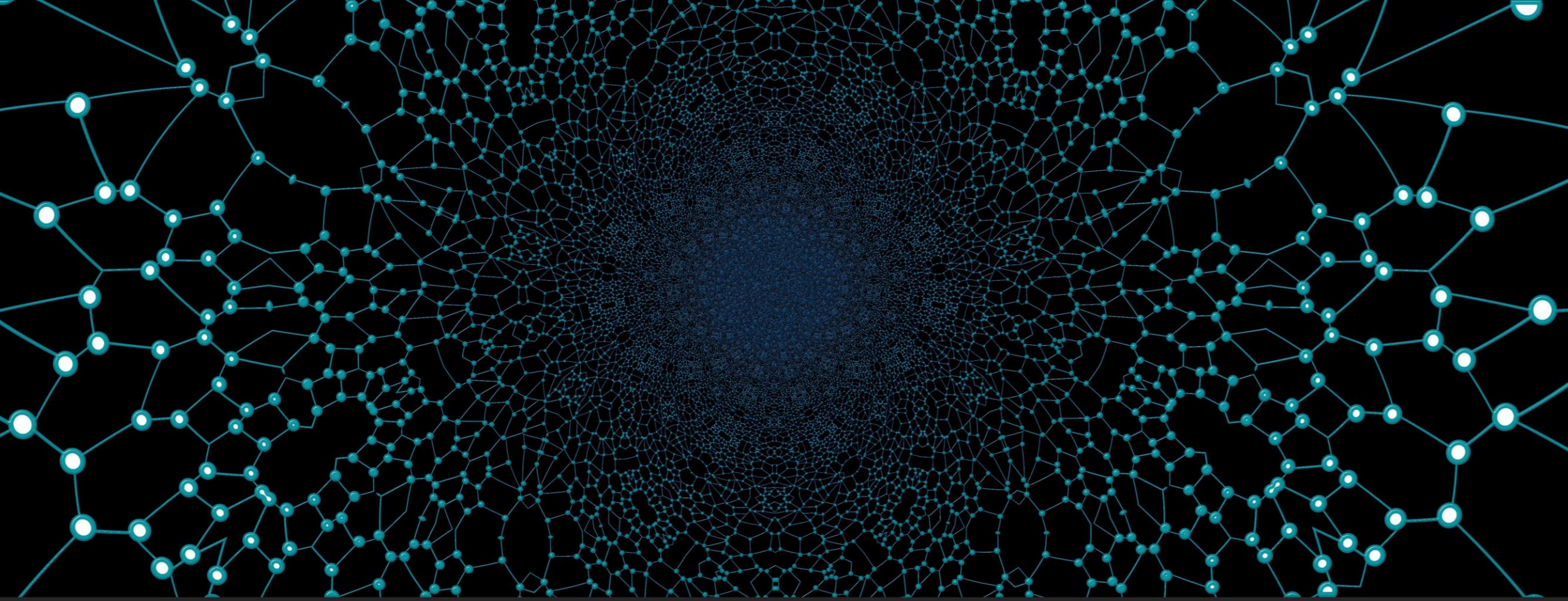


Basics of Machine Learning

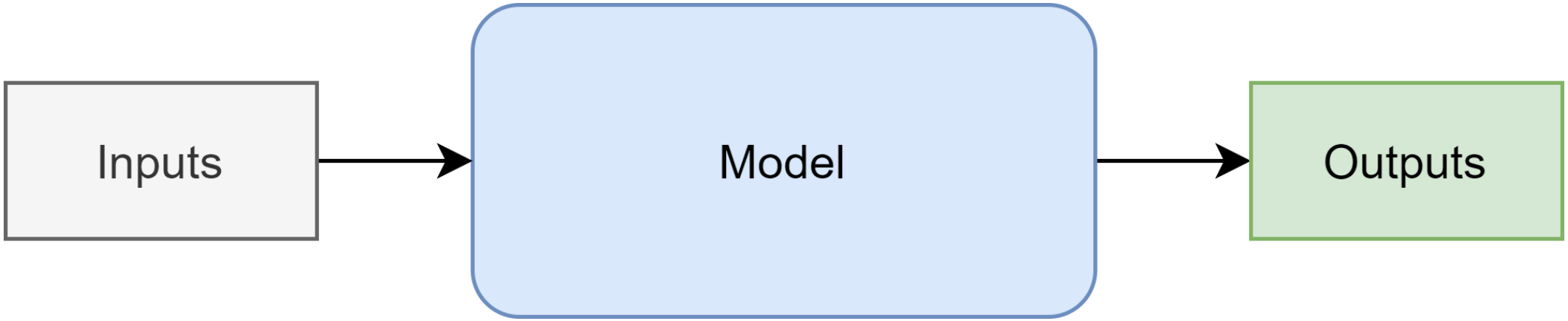
Dr. Matthias Hölzl

Overview

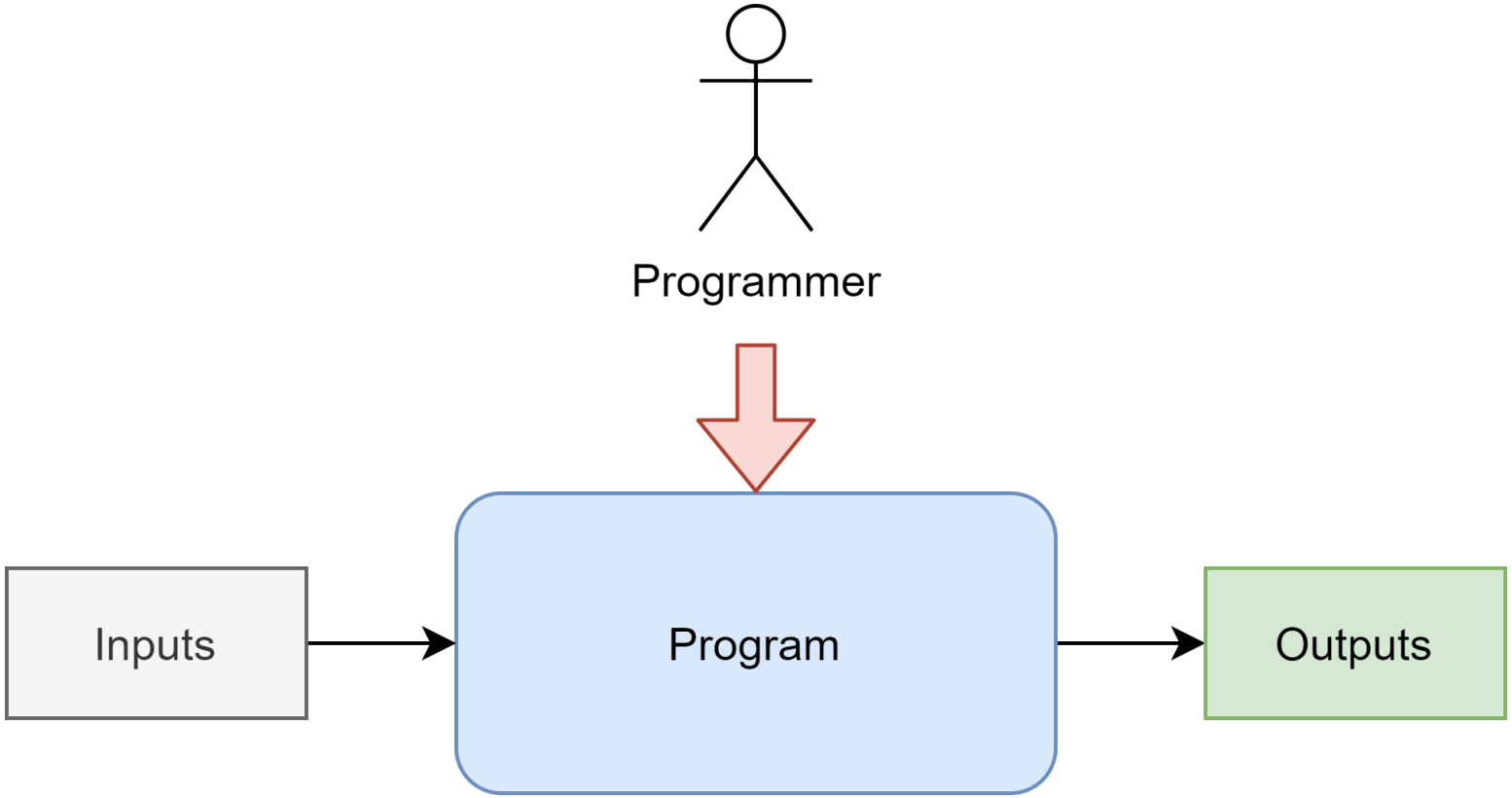
HOW DOES MACHINE LEARNING WORK?

Program vs. Model

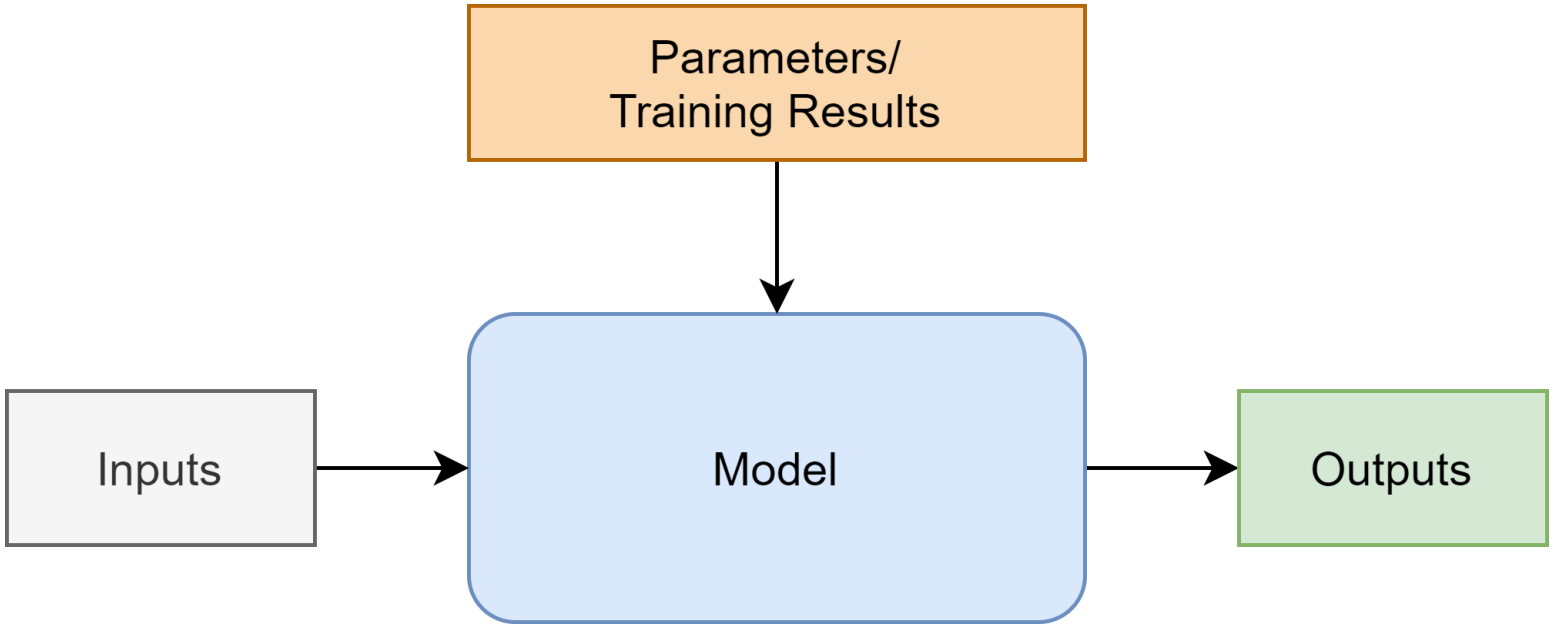
Program vs. Model



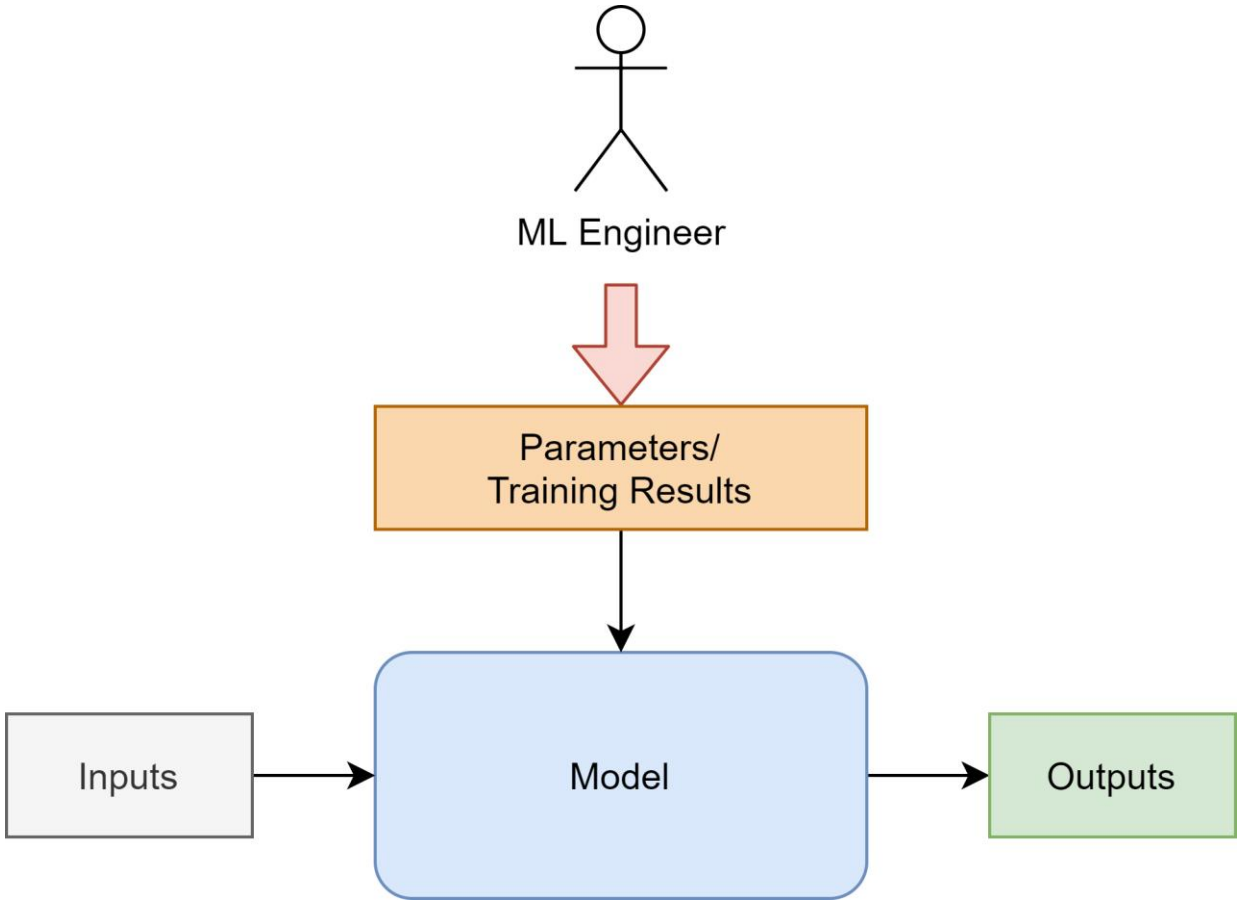
Program vs. Model



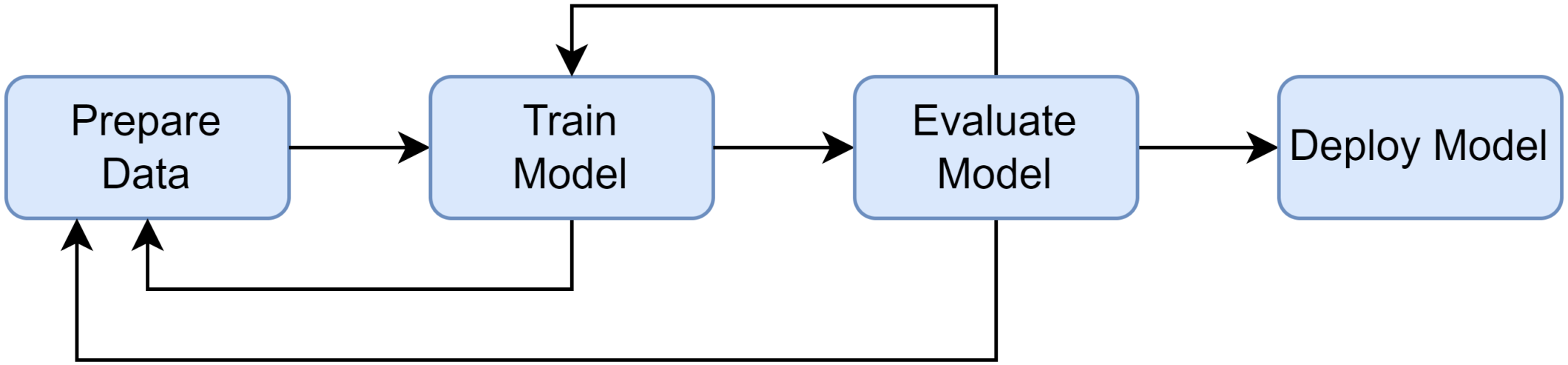
Program vs. Model



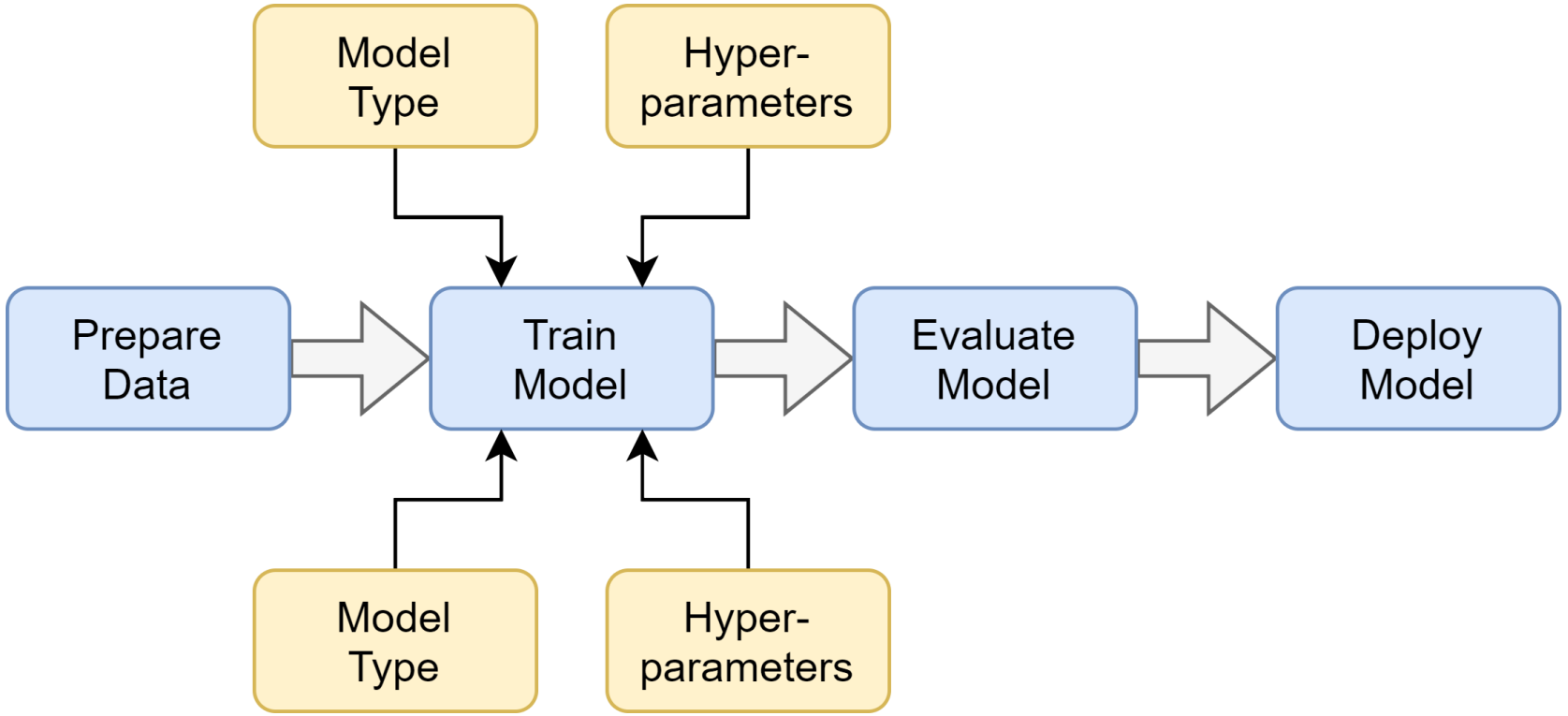
Program vs. Model



Machine Learning Workflow

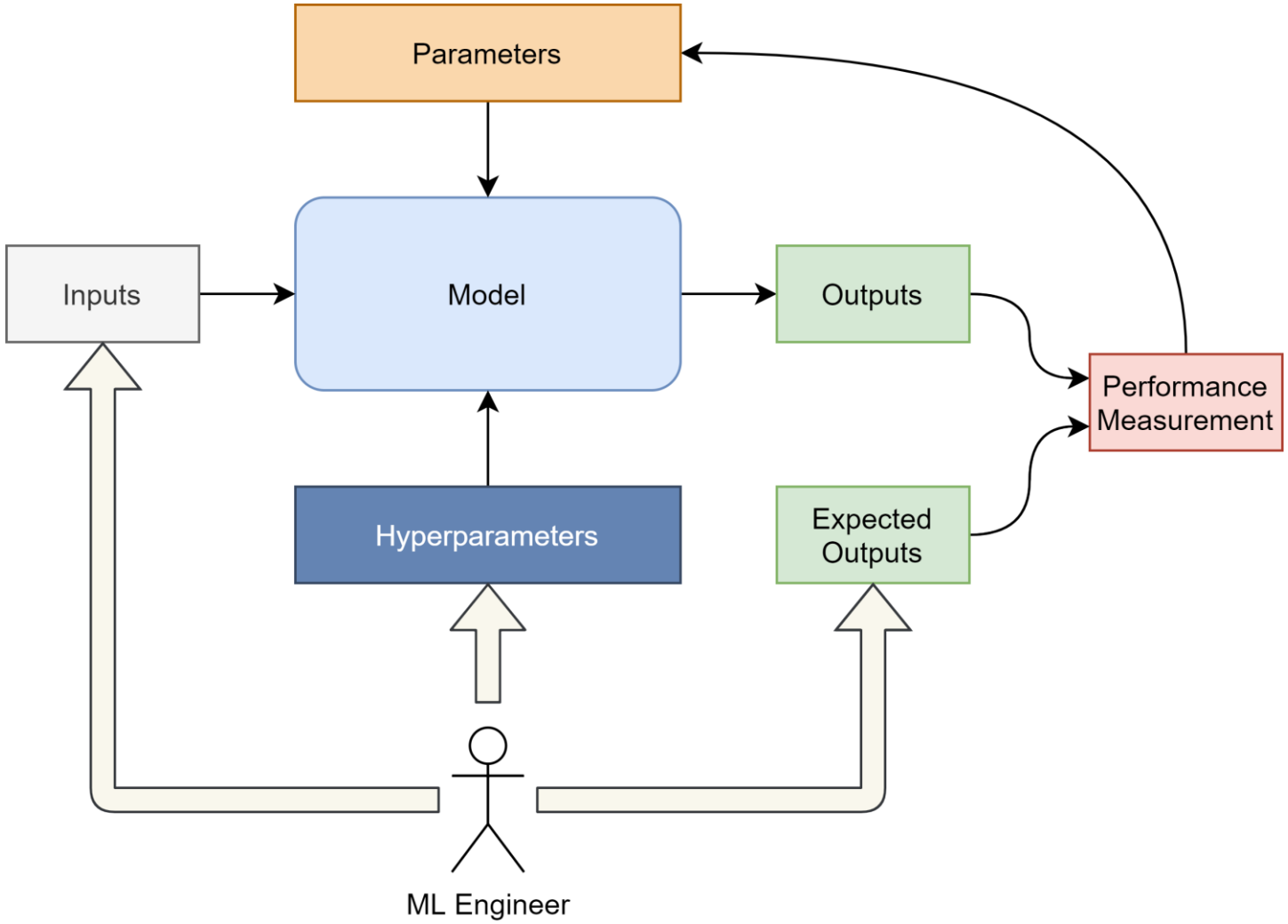


Machine Learning Workflow



ML Workflow

Traditional Models



ML Workflow

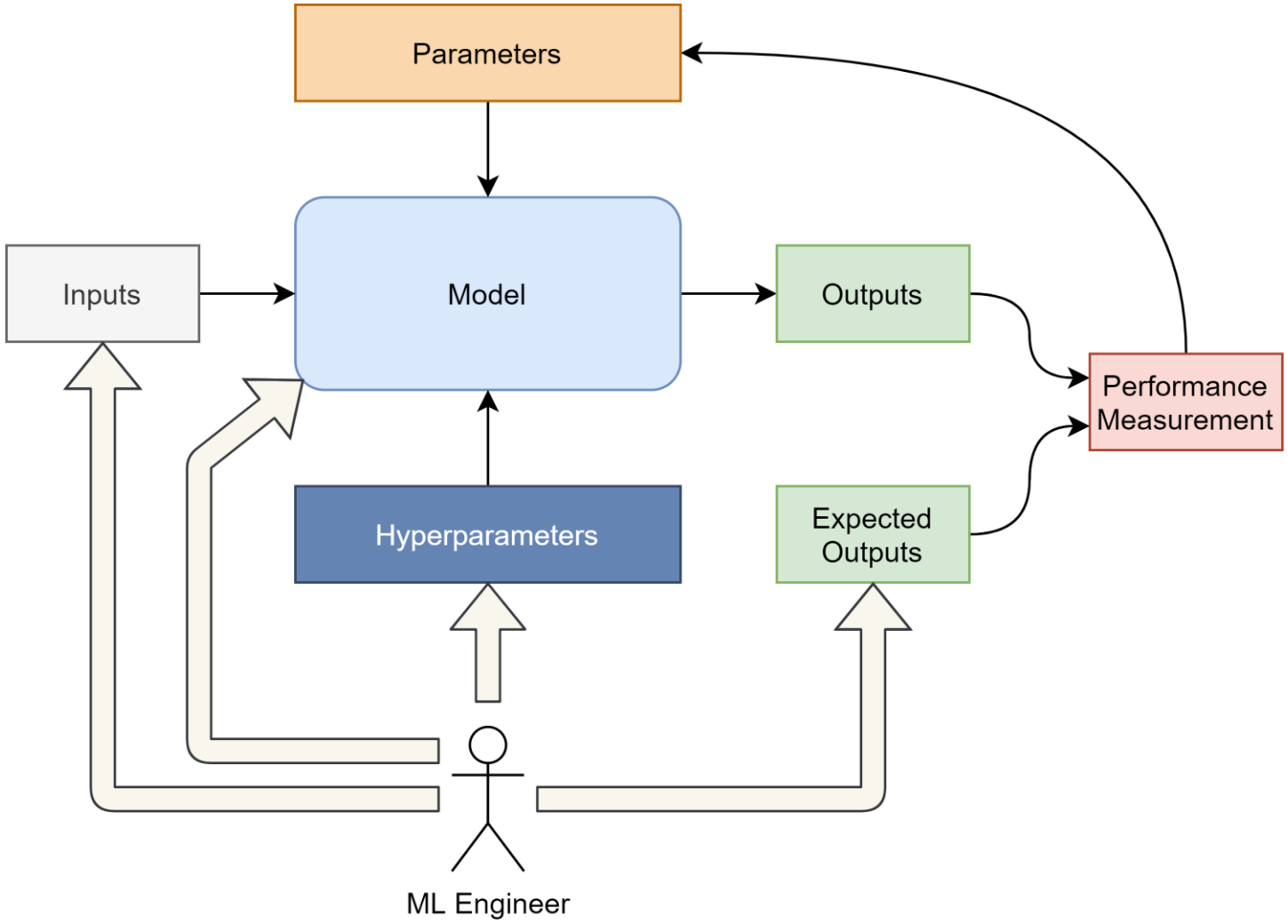
Traditional Models

(Random Forest)

```
x_train, x_test = split_data()

y_train, y_test = split_expected()

model = RandomForestRegressor(
    n_estimators=100, max_depth=3,
    criterion="mse"
)

model.fit(x_train, y_train)

predictions = model.predict(x_test)
```

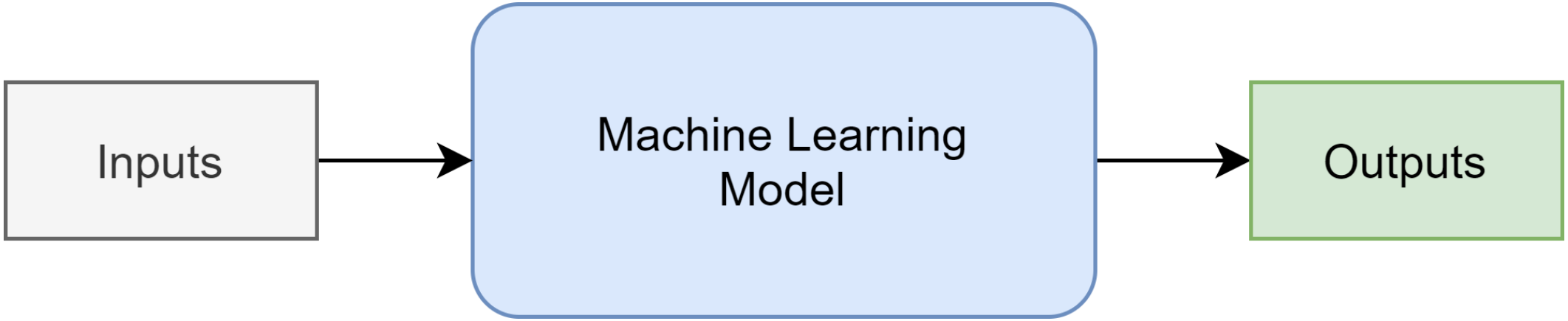
ML Workflow

Deep Learning

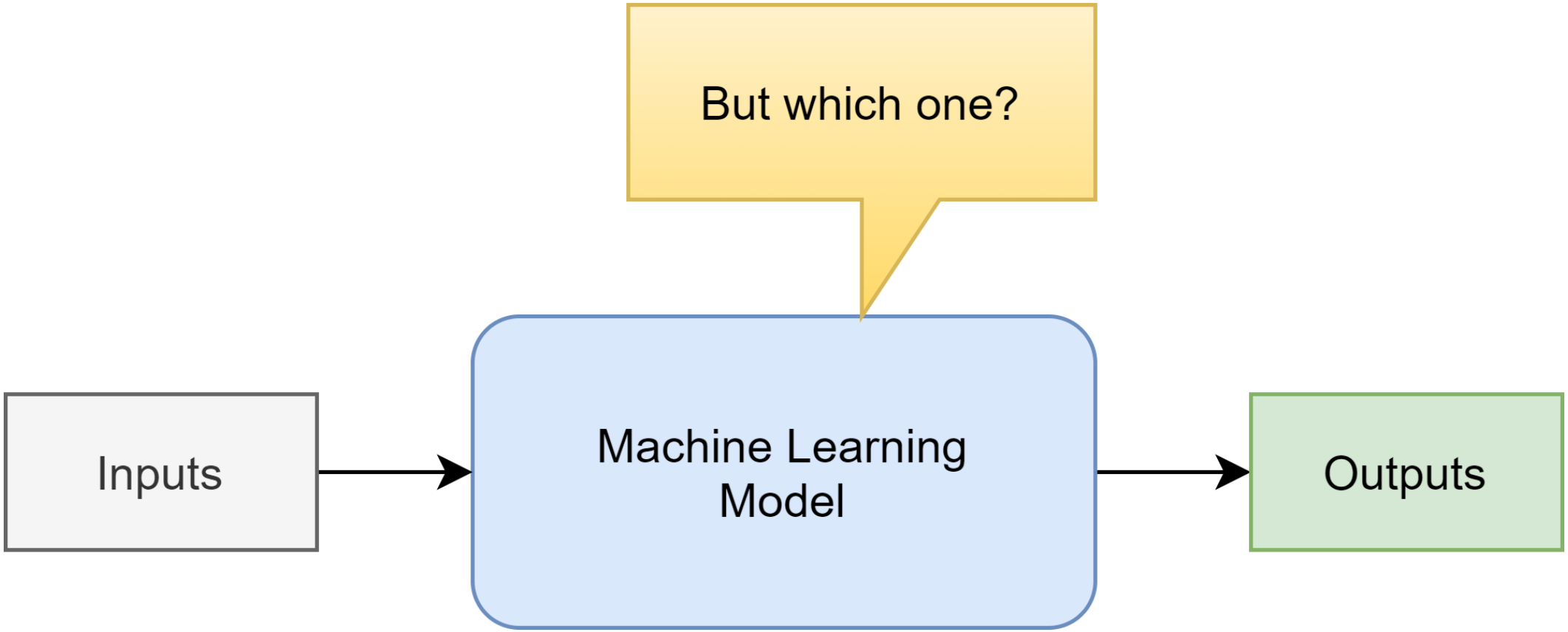


Building a Program

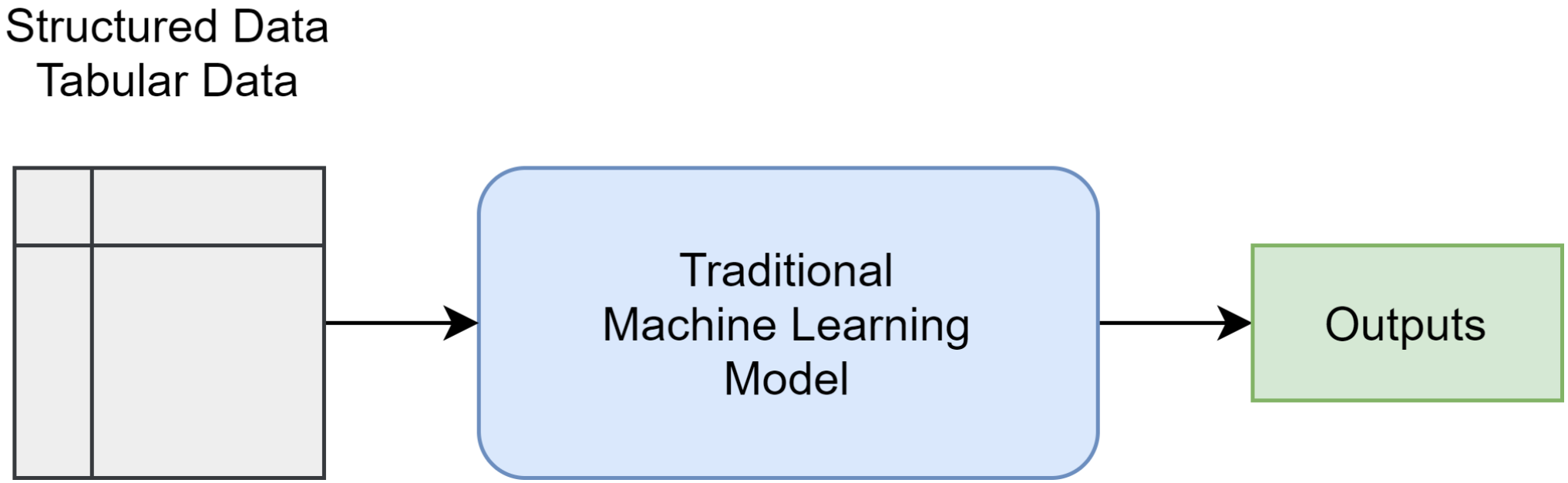
Choosing an ML model



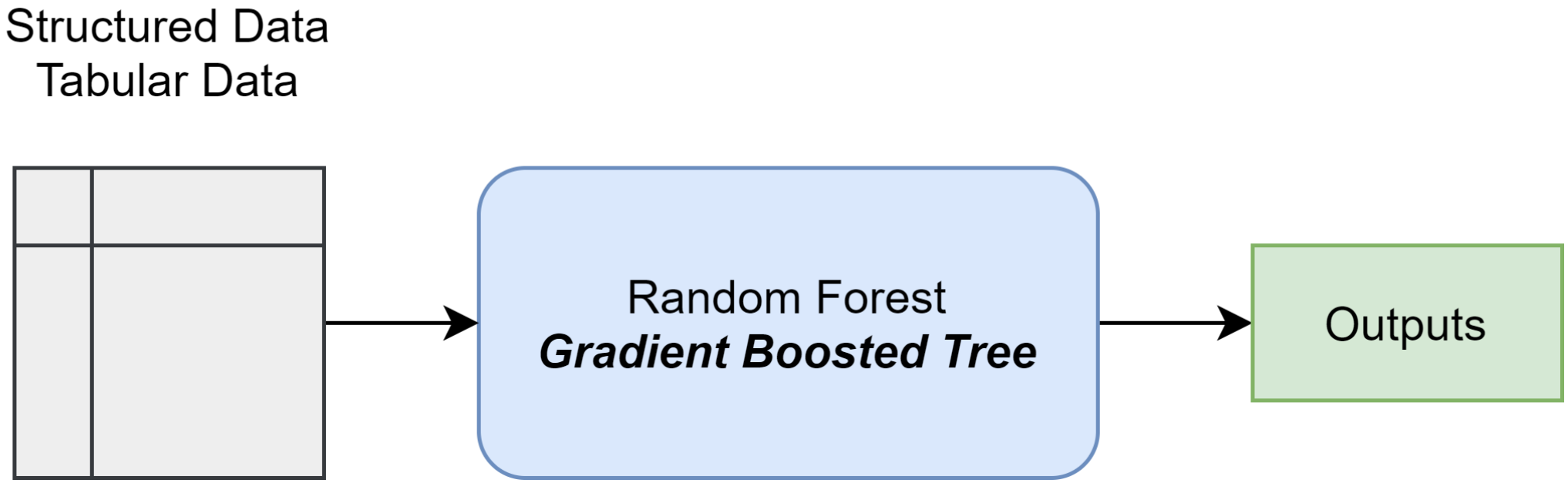
Choosing an ML model



Choosing an ML model

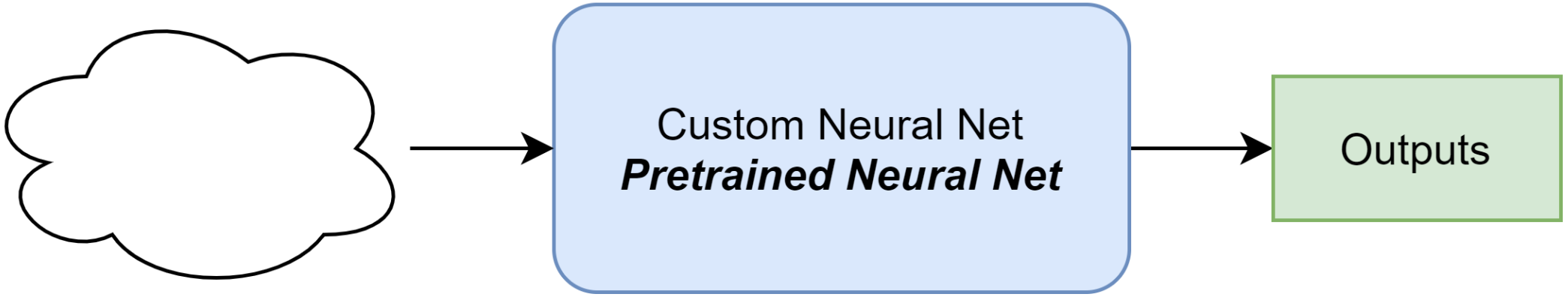


Choosing an ML model



Choosing an ML model

"Cognitive Problems"
Images
Audio
Video
Text



Let's dig deeper…