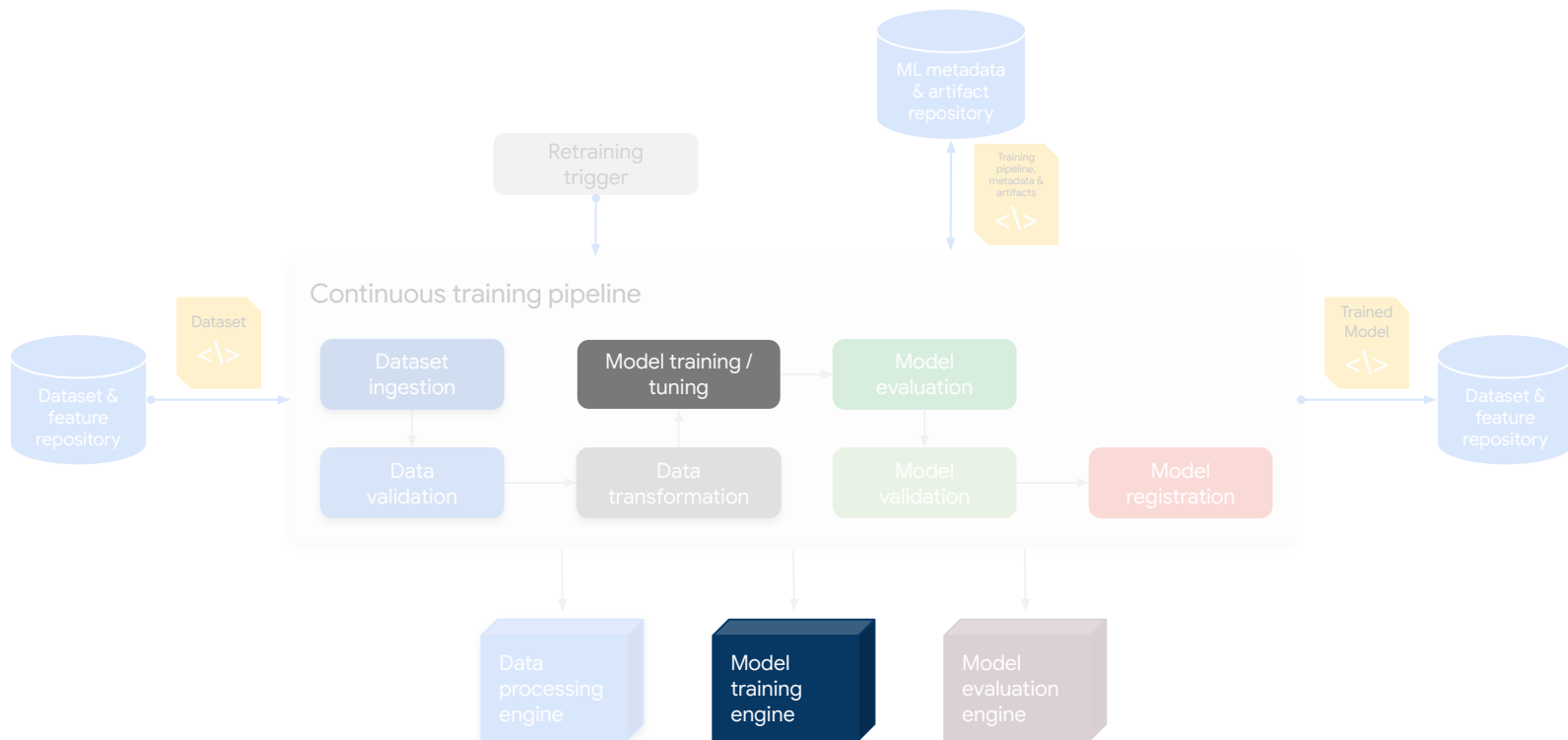


Continuous Training: Model Training/Tuning with AutoML



MLOps: Continuous Training



The MLOps Personas



ML
Engineer



ML
Researcher



Data
Scientist



Data
Engineer



Software
Engineer



DevOps



Business
Analyst

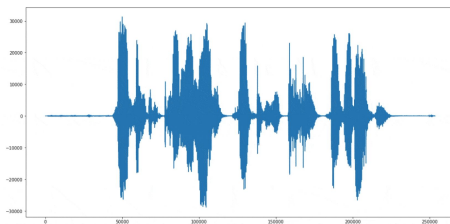
What is AutoML?

ML Workflow

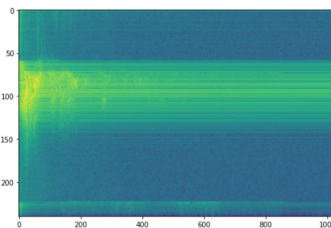


Keyword Spotting Workflow

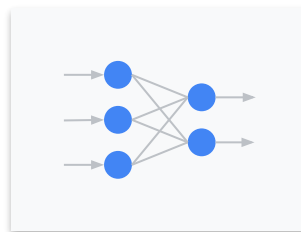
Input



Preprocessing



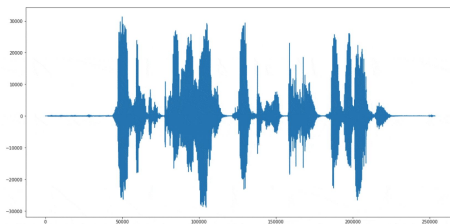
Output



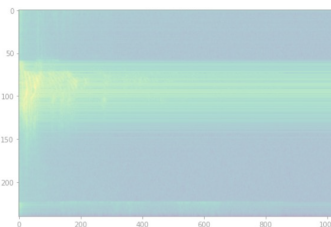
“Yes” - 0.91
“No” - 0.09

Keyword Spotting **Workflow**

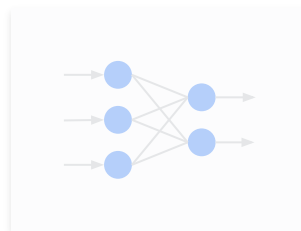
Input



Preprocessing

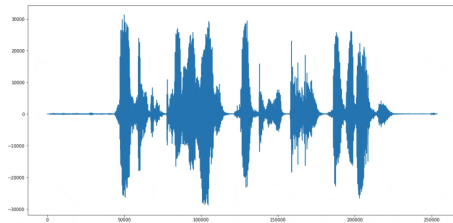


Output



“Yes” - 0.91
“No” - 0.09

Role of the Input Signal



Window length, window step, downsample?

Time series data

?

Axes

audio

?

Window size

1000 ms.

?

Window increase

500 ms.

?

Frequency (Hz)

16000

C

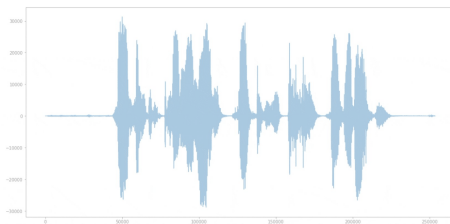
?

Zero-pad data

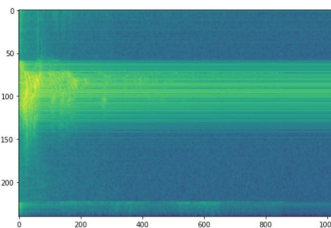
☐

Keyword Spotting Workflow

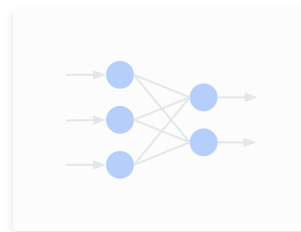
Input



Preprocessing



Output



“Yes” - 0.91
“No” - 0.09

Spectrograms v. MFCCs

Parameters

Spectrogram

Frame length

0.02

Frame stride

0.01

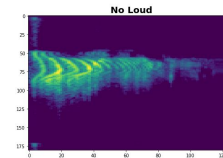
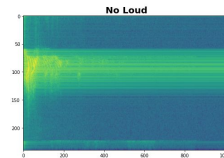
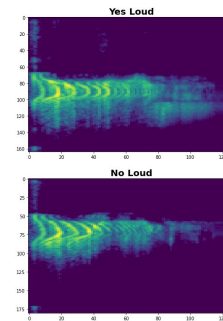
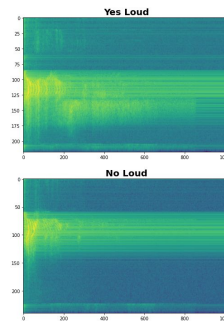
Frequency bands

128

Normalization

Noise floor (dB)

-52



Parameters

Mel Frequency Cepstral Coefficients

Normalization window size

Low frequency

High frequency

Pre-emphasis

Coefficient

Shift

Number of coefficients

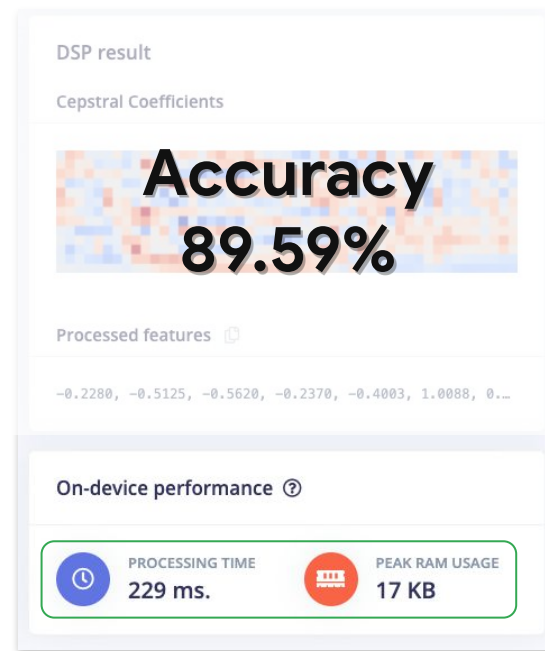
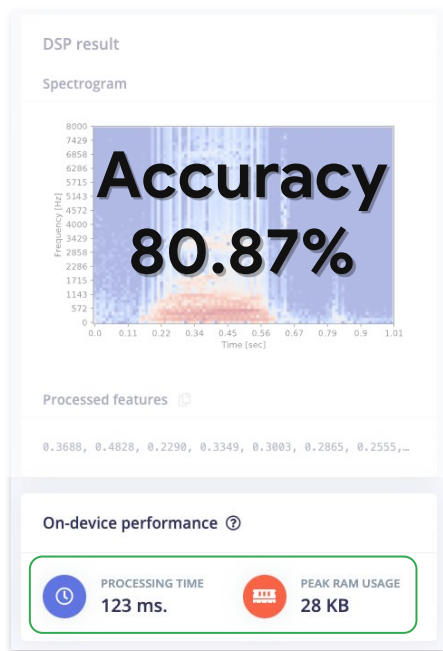
Frame length

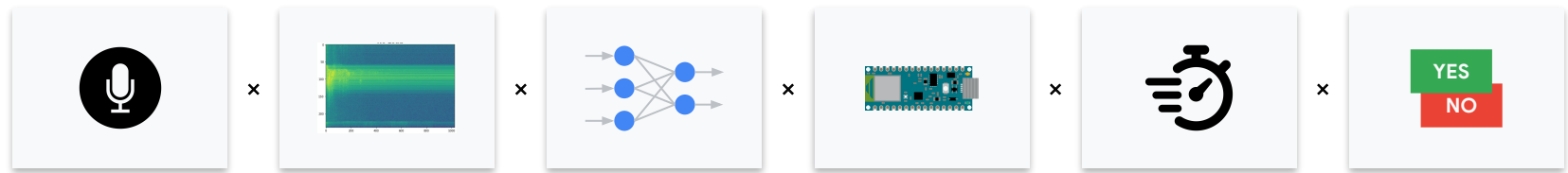
Frame stride

Filter number

FFT length

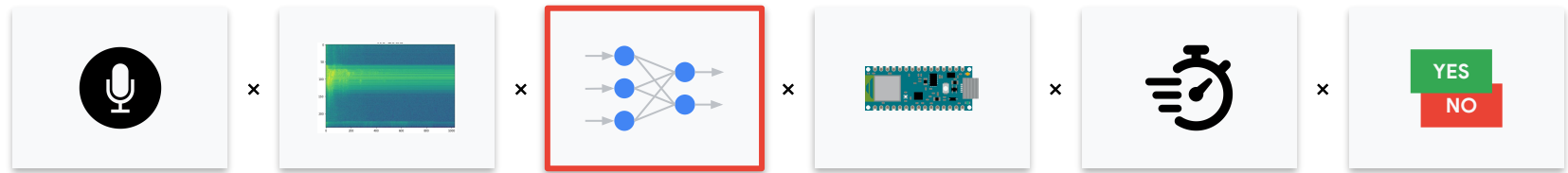
Spectrograms v. MFCCs

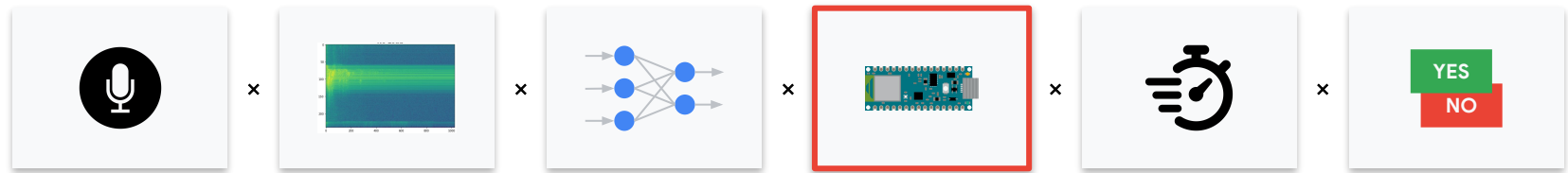






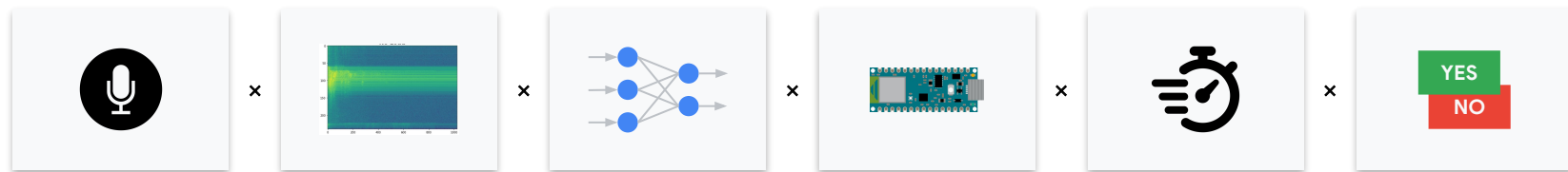












What are the **components** of AutoML?

ML Workflow



Optimization Targets

ML Workflow



Accuracy



Latency



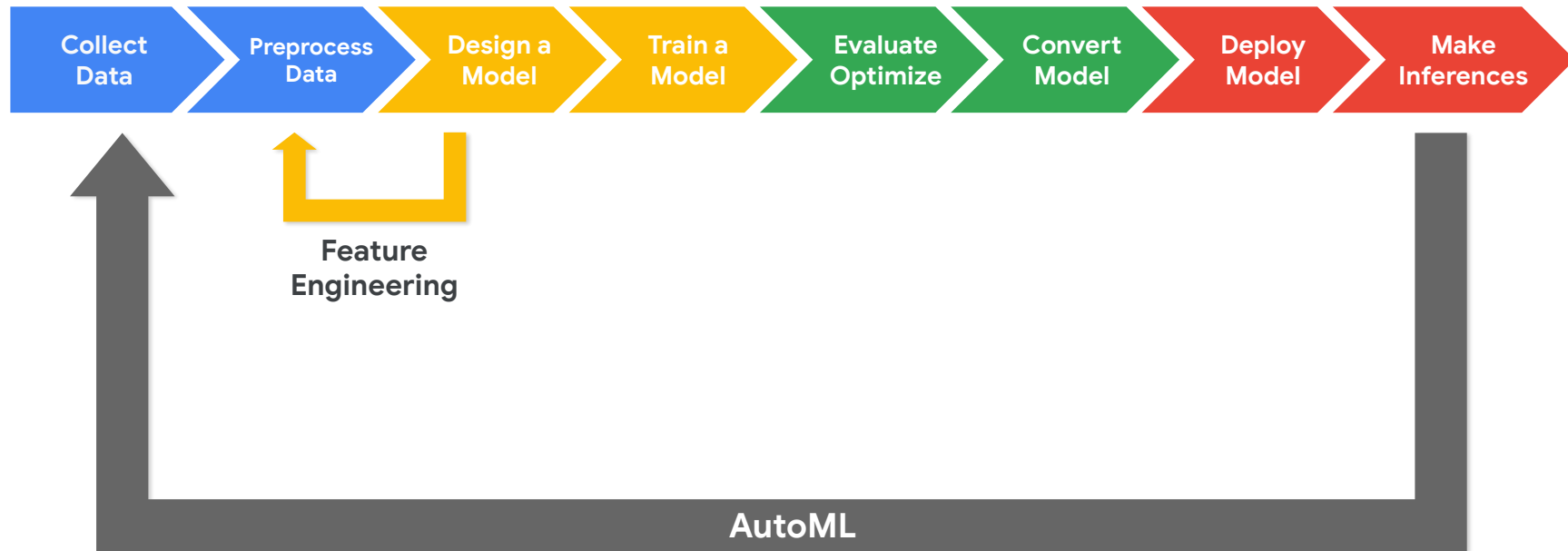
Memory



Power

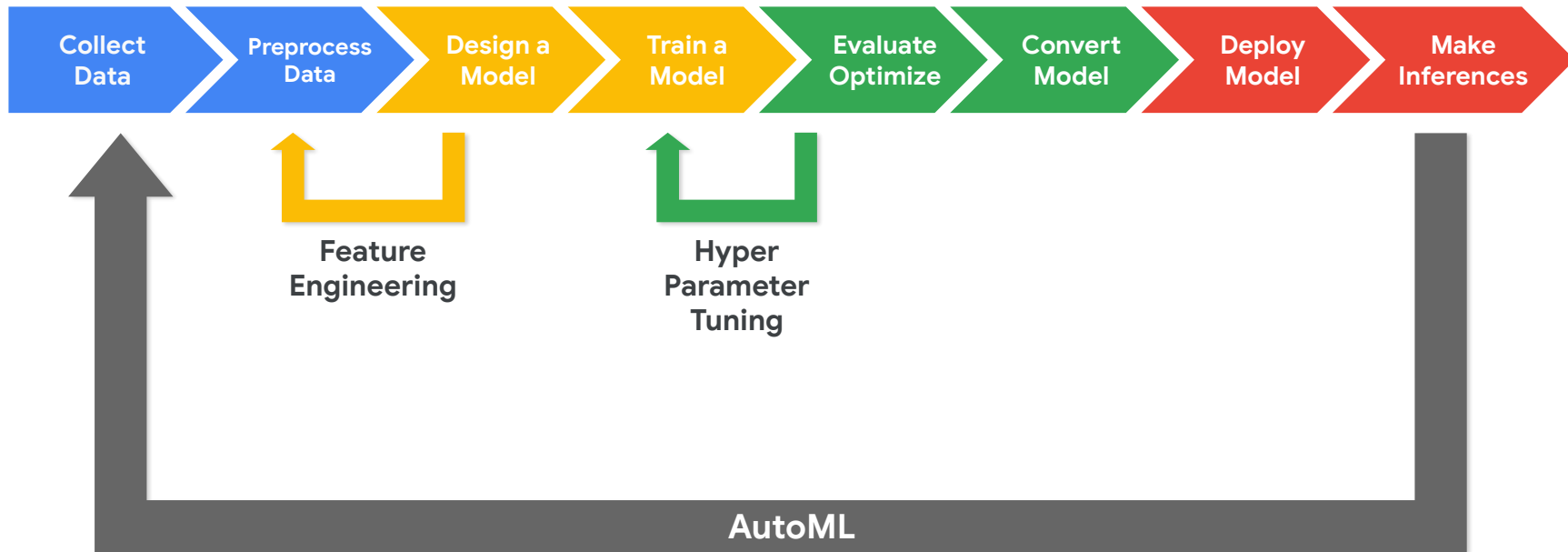
What are the **components** of AutoML?

ML Workflow

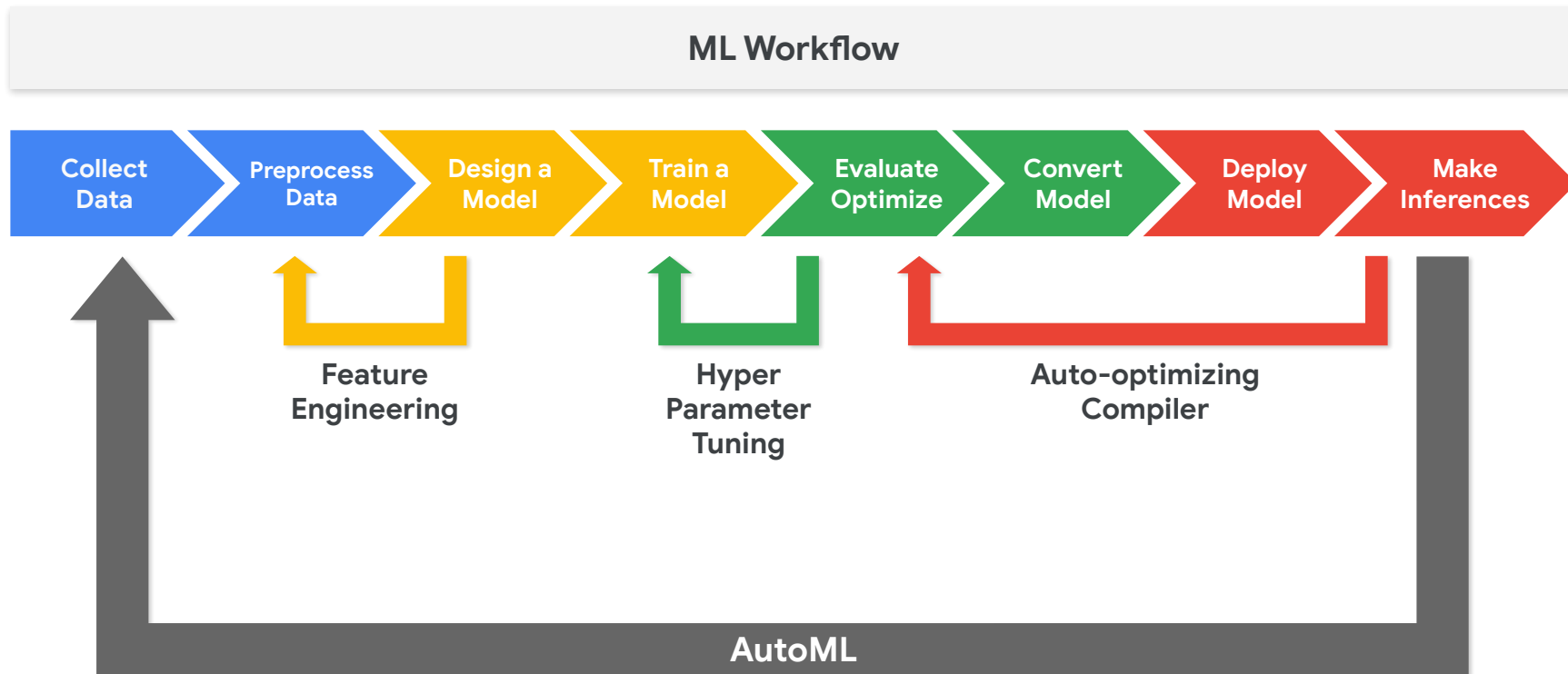


What are the **components** of AutoML?

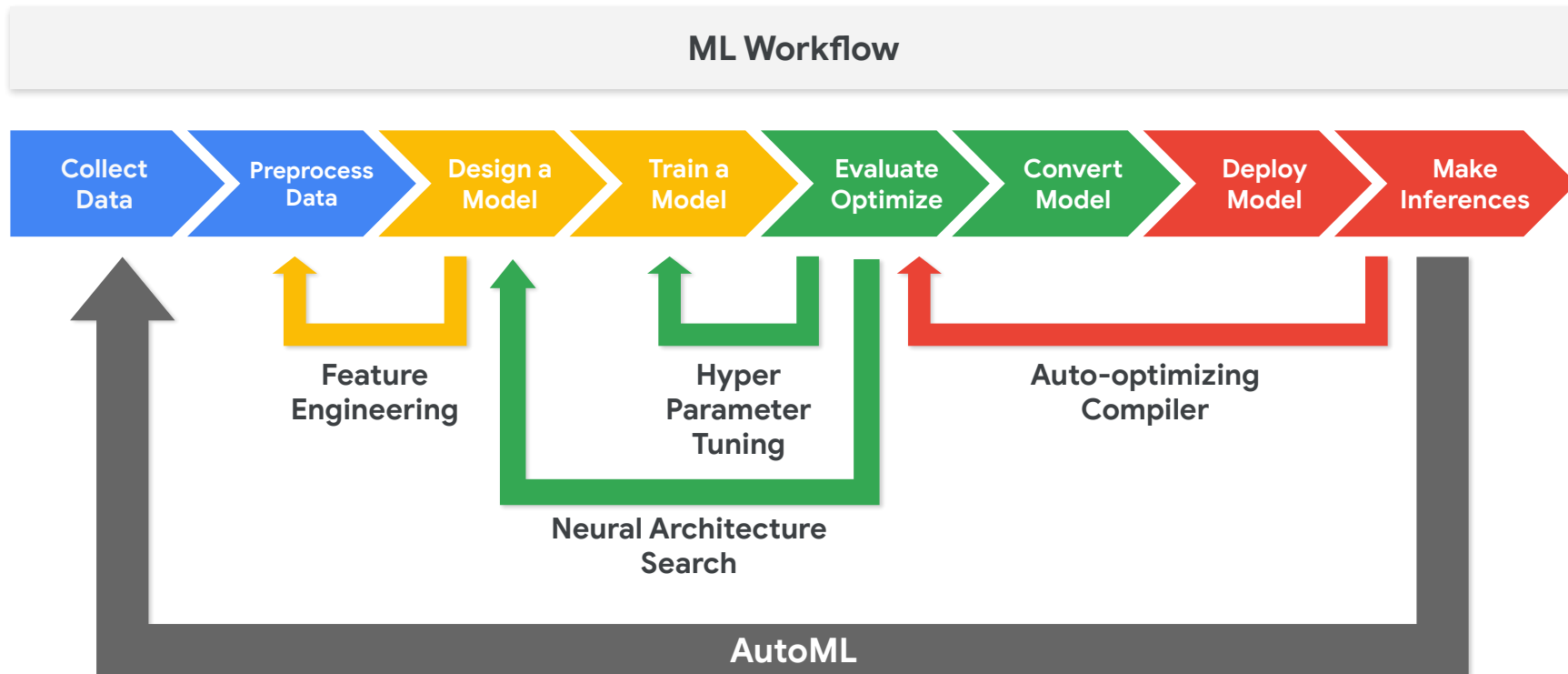
ML Workflow



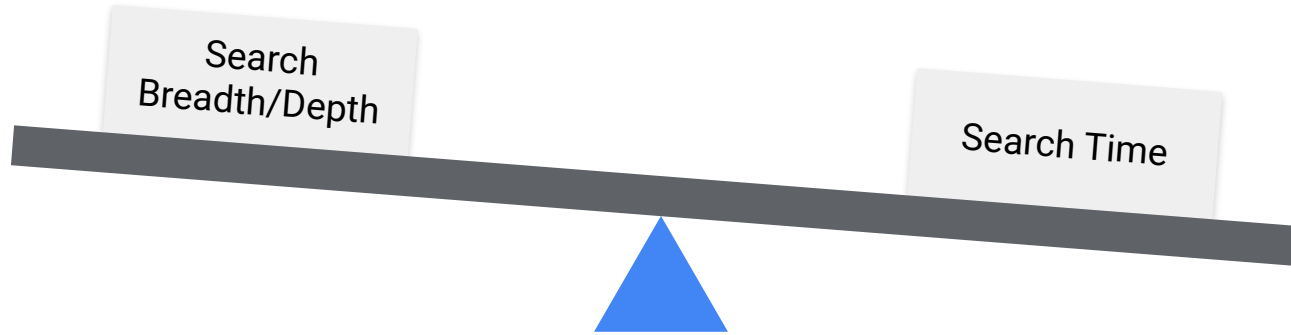
What are the **components** of AutoML?



What are the **components** of AutoML?



Balance





Intelligent Agent
Neutron

Existing Solutions



EDGE IMPULSE

**Eon
Tuner**

Presenter