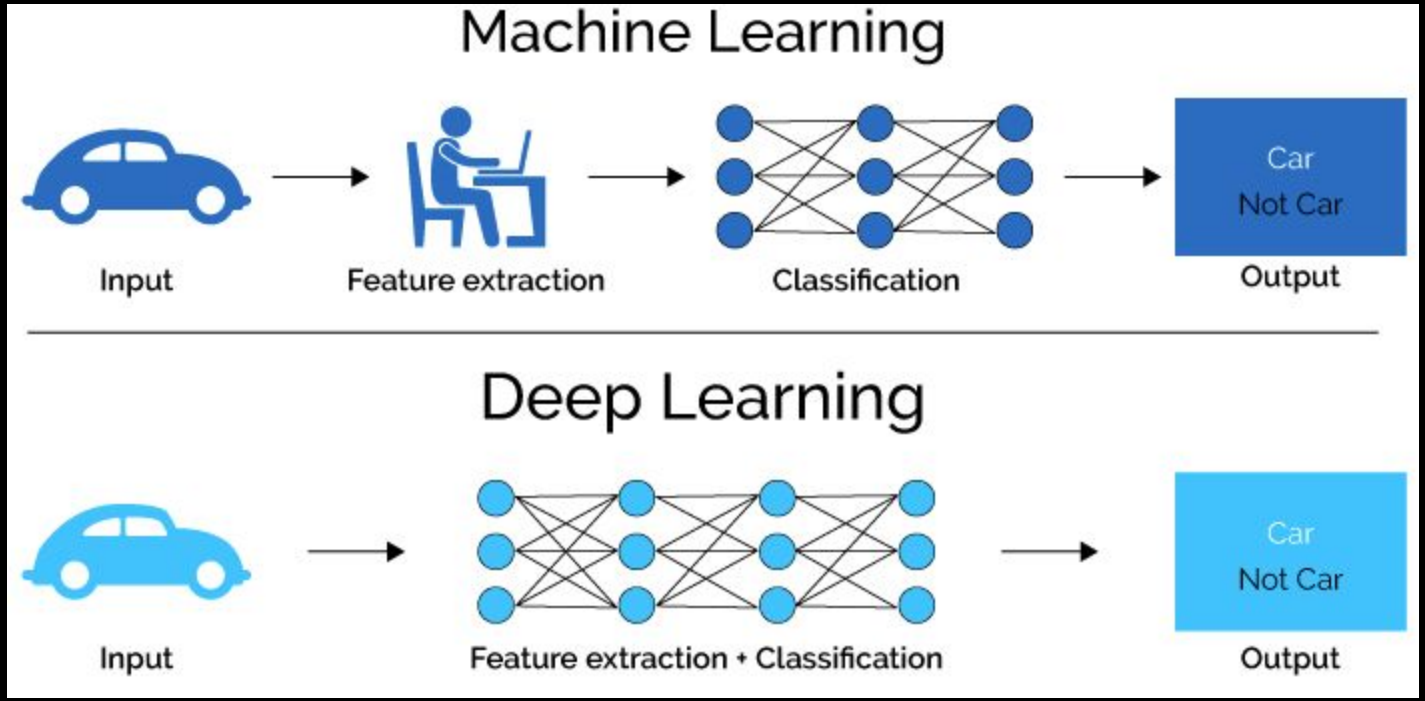
Machine Learning
Deep Learning
구별할 이유가 있나?

먼저 숙고해봐야 할

한 장의 이미지!


Machine Learning
Input
Feature extraction
Classification
Car
Not Car
Output
Deep Learning
Input
Feature extraction + Classification
Car
Not Car
Output

ML 필수 절차

Feature Engineering

Learning :
Model Training

Inference
(prediction)

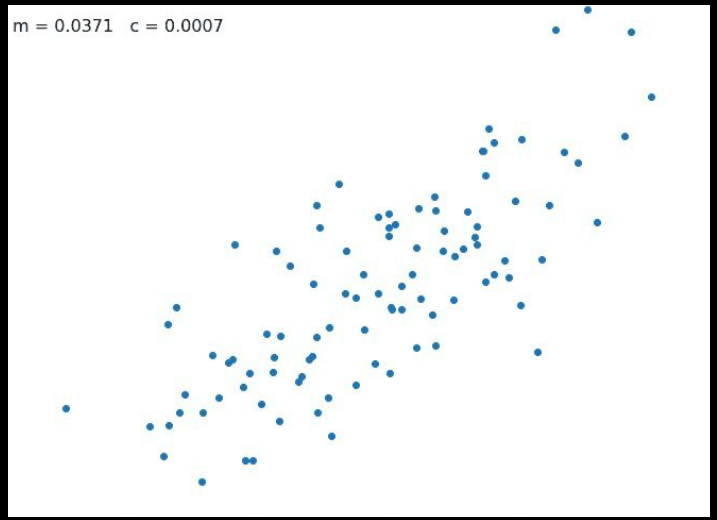
ML 필수 절차

Feature Engineering

Learning : Model Training

Inference (prediction)

Linear Regression



1. '주어진 데이터'를 바탕으로.
2. 올바른 회귀 값이 나오도록
   → 에러가 줄어들도록
3. 가중치를 조절함.

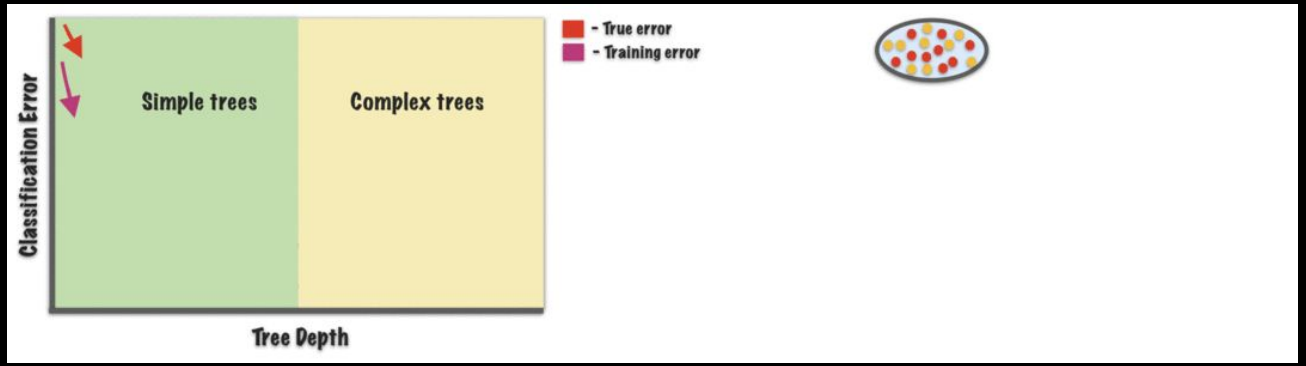
ML 필수 절차

Feature Engineering

Learning : Model Training

Inference (prediction)

Decision Tree



1. ‘주어진 데이터’를 바탕으로.
2. 올바른 분류/회귀 값이 나오도록
   → 에러가 줄어들도록
3. 분기 조건을 찾음.

ML 필수 절차

Feature Engineering

Learning : Model Training

Inference (prediction)

‘주어진 데이터’를 바탕으로, 의사결정 **Rule**이 생성됨.

주어진 데이터가 ‘성능’을 좌우함!

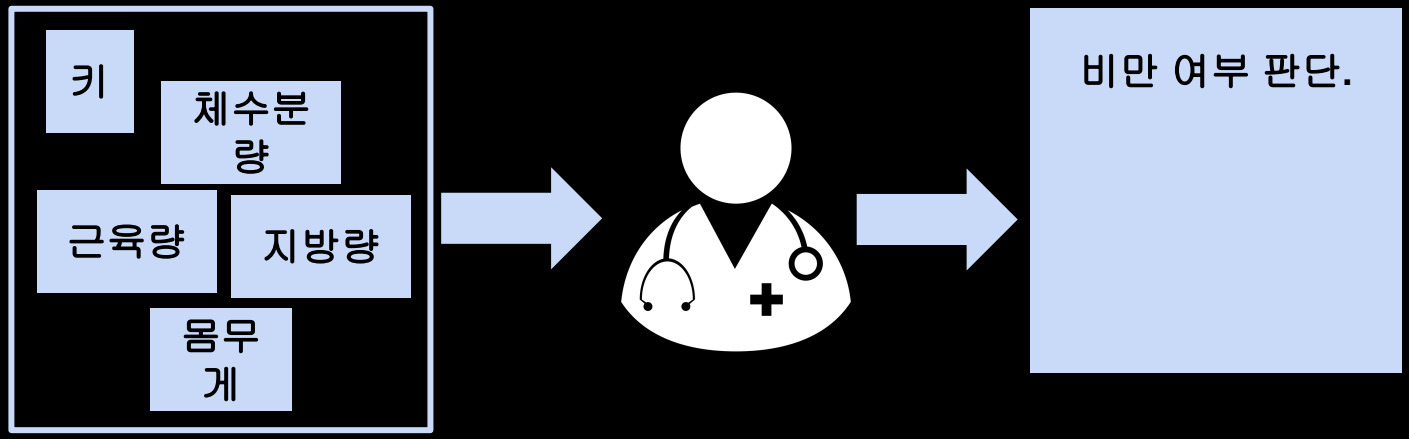
ML 필수 절차

Feature Engineering

Learning : Model Training

Inference (prediction)

주어진 데이터로 의사결정 rule을 만든다?



ML 필수 절차

Feature Engineering

Learning : Model Training

Inference (prediction)

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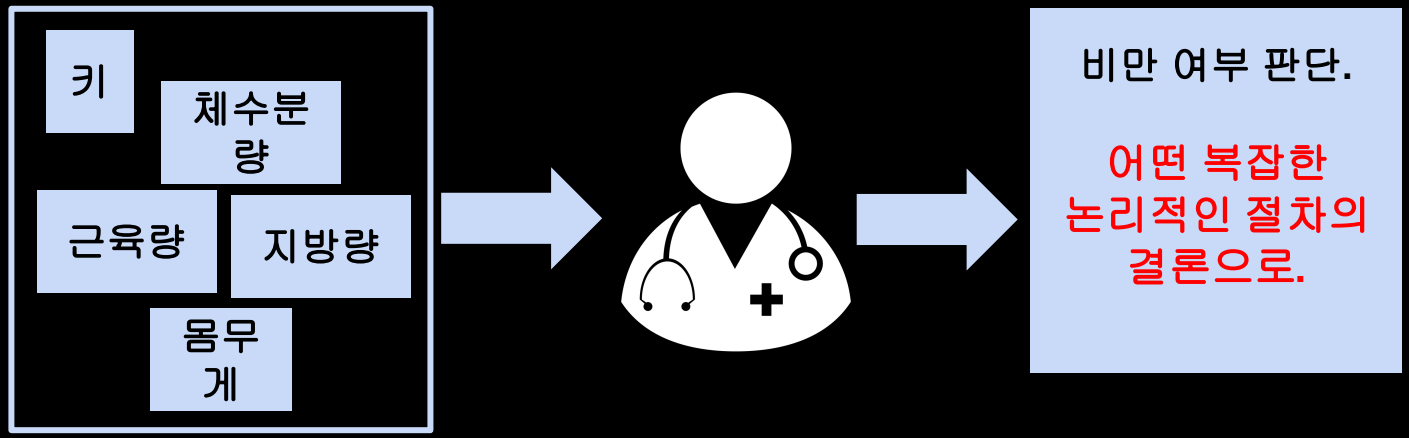

ML 필수 절차

Feature Engineering

Learning : Model Training

Inference (prediction)

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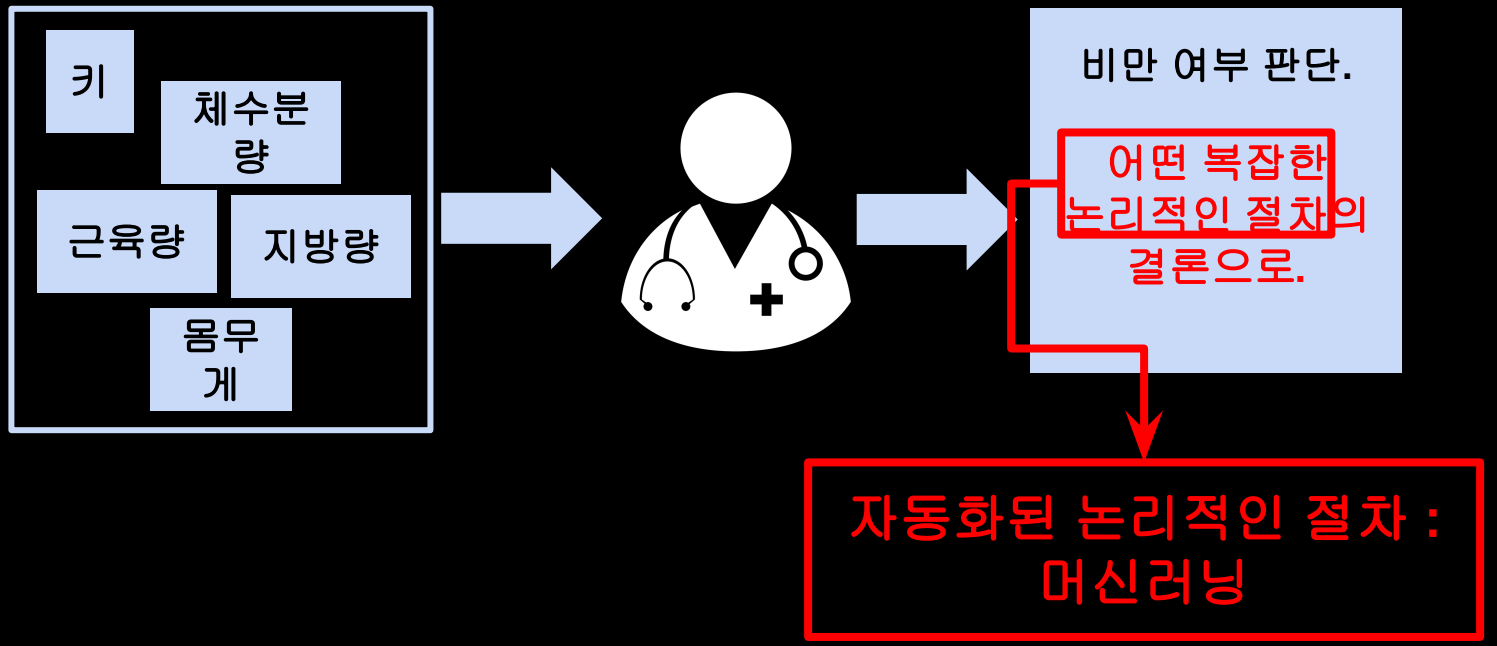

ML 필수 절차

Feature Engineering

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Inference (prediction)

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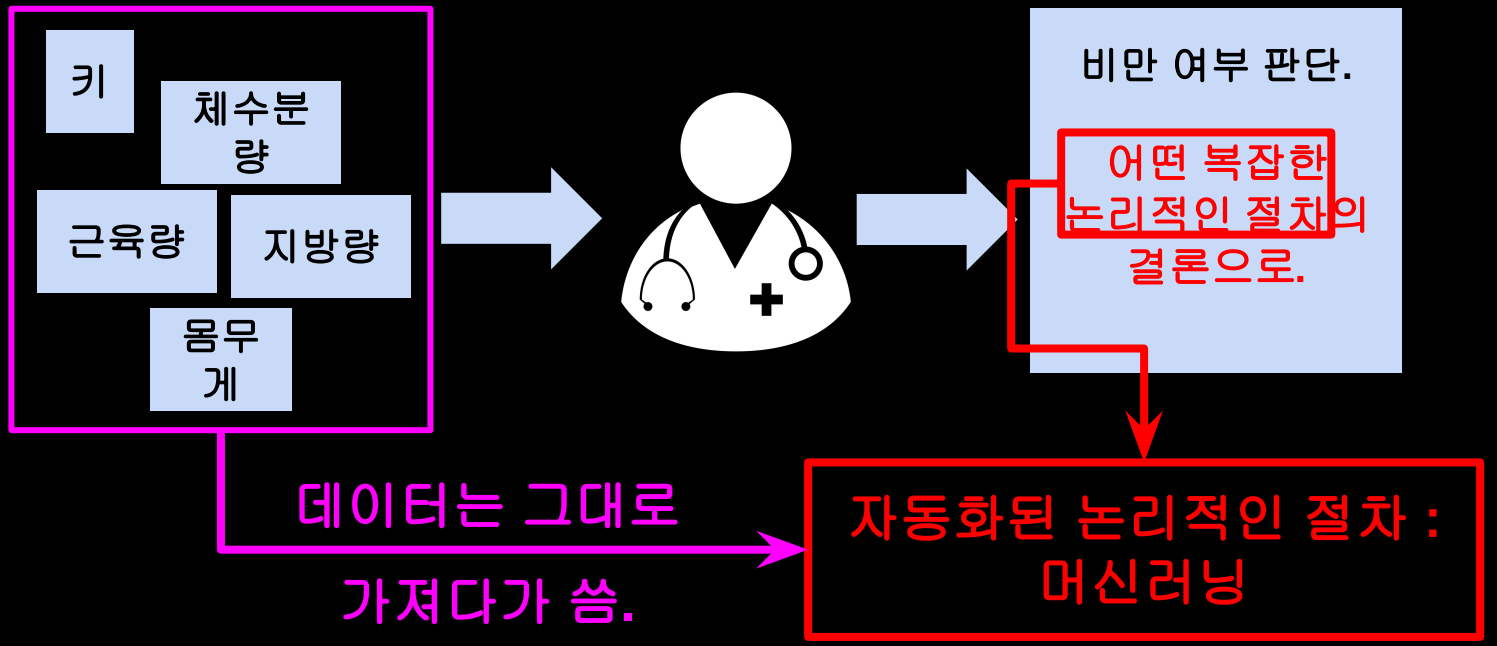

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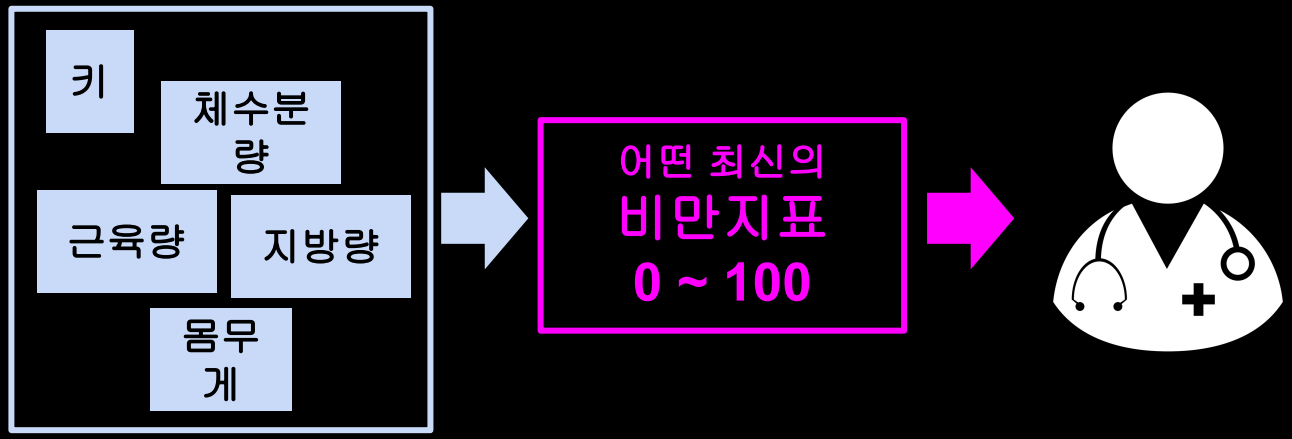

ML 필수 절차

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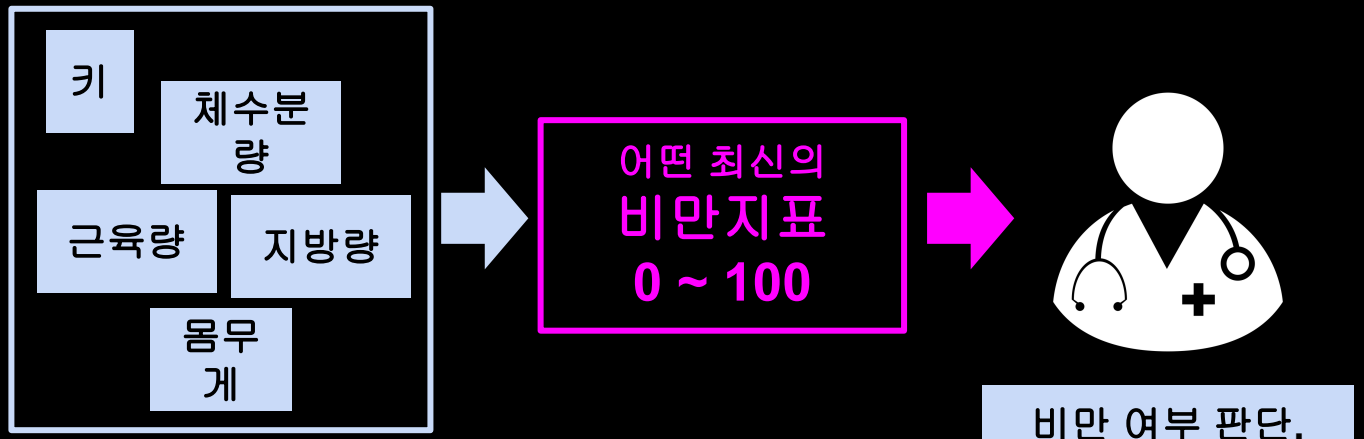

ML 필수 절차

Feature Engineering

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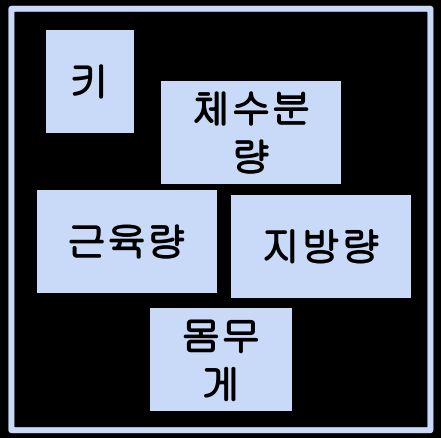


어떤 최신의 비만지표 0 ~ 100

비만 여부 판단.
80점 넘으면 비만.

쉬운 논리절차의 결론.

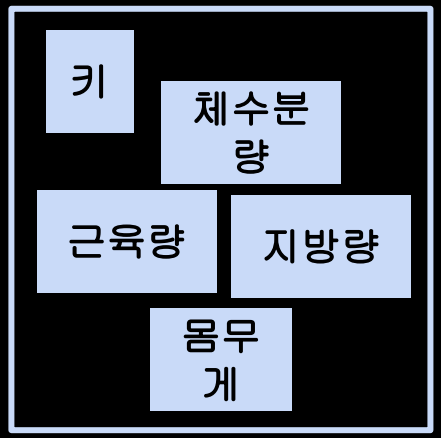
ML 필수 절차

Feature Engineering

Learning : Model Training

Inference (prediction)

주어진 데이터로 의사결정 rule을 만든다



어떤 최신의 비만지표 0 ~ 100

비만 여부 판단.
80점 넘으면 비만.

쉬운 논리절차의 결론.

쉽게! 자동화된 논리적인 절차 : 머신러닝

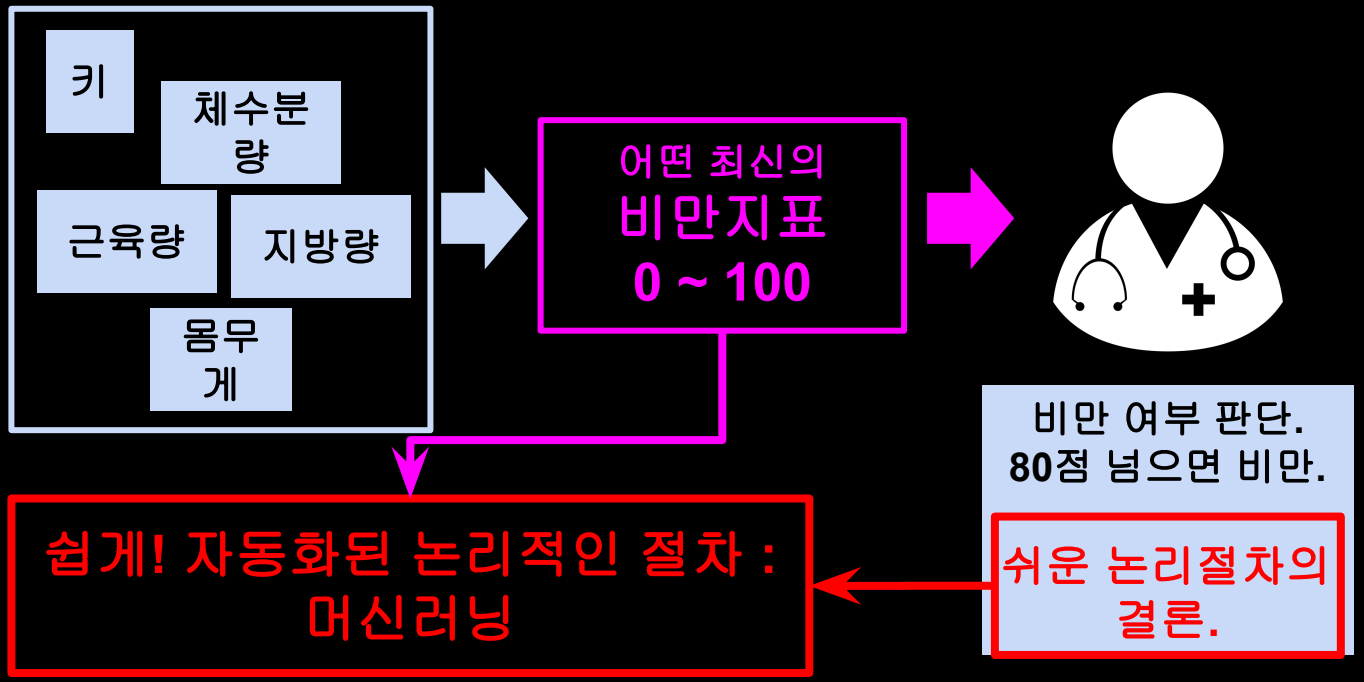
ML 필수 절차

Feature Engineering

Learning : Model Training

Inference (prediction)

주어진 데이터로 의사결정 rule을 만든다



ML 필수 절차

Feature Engineering

Learning : Model Training

Inference (prediction)

주어진 데이터가

얼마나 '적절'하느냐에 따라서.

의사결정 **rule** ← 제작 난이도가 다르다!

ML 필수 절차

Feature Engineering

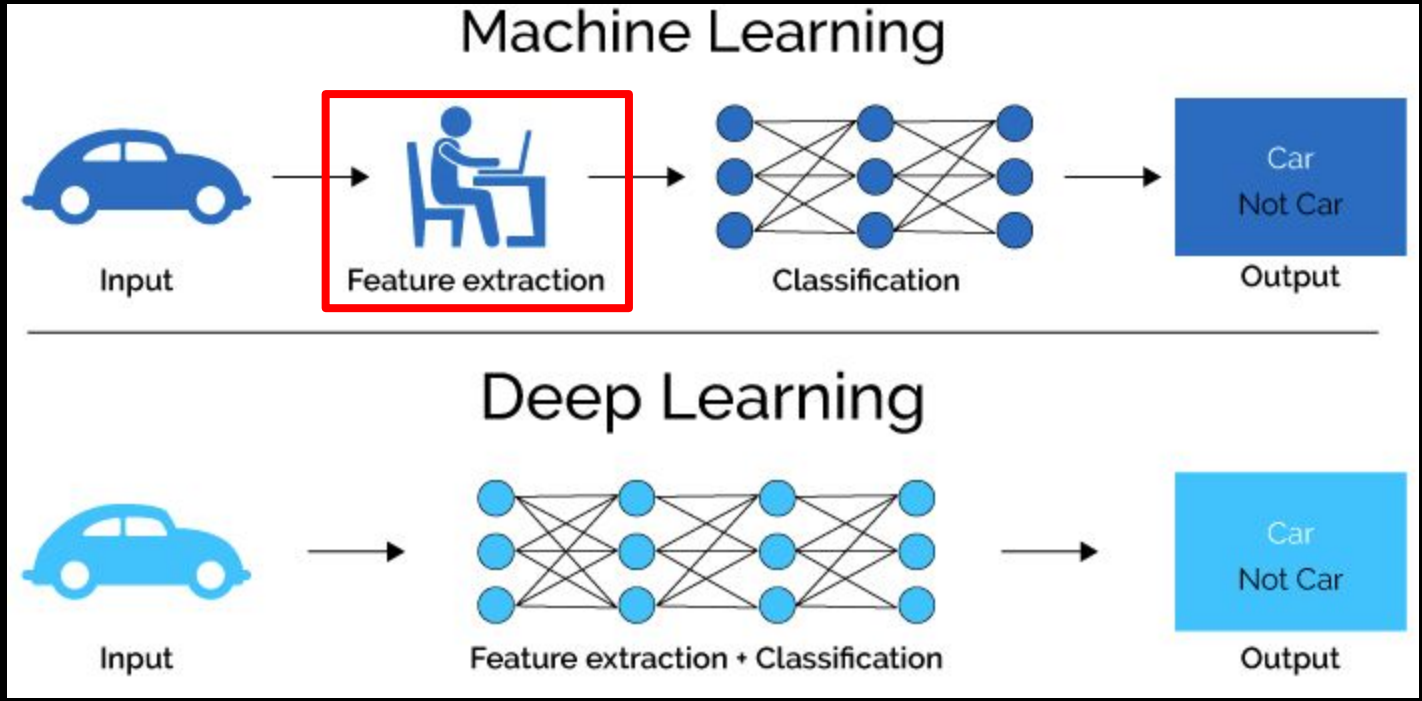
Learning : Model Training

Inference (prediction)

Feature Engineering :

주어진 데이터를, 의사결정에 도움되도록
더 적절히 만들어보는 절차.

(Math <<<< Domain Knowledge)


Machine Learning
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Feature extraction
Classification
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Deep Learning
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Feature extraction + Classification
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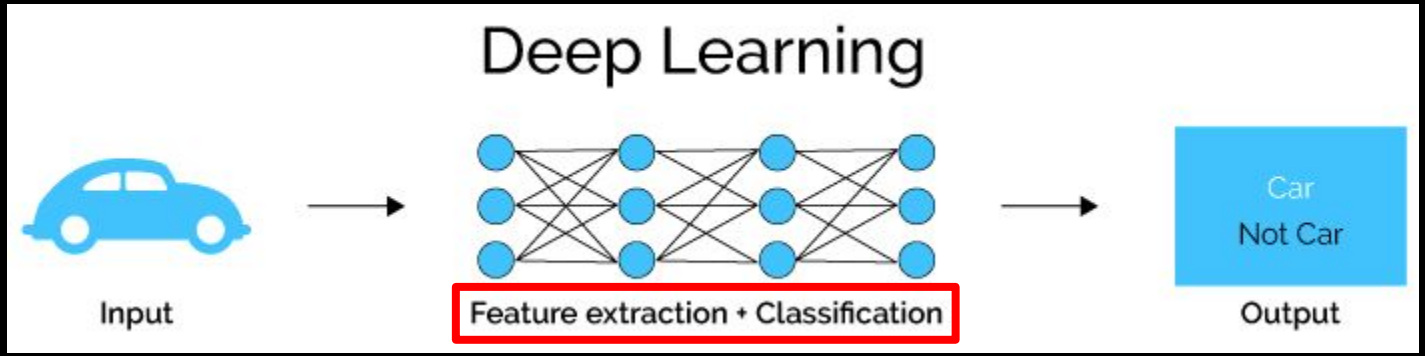
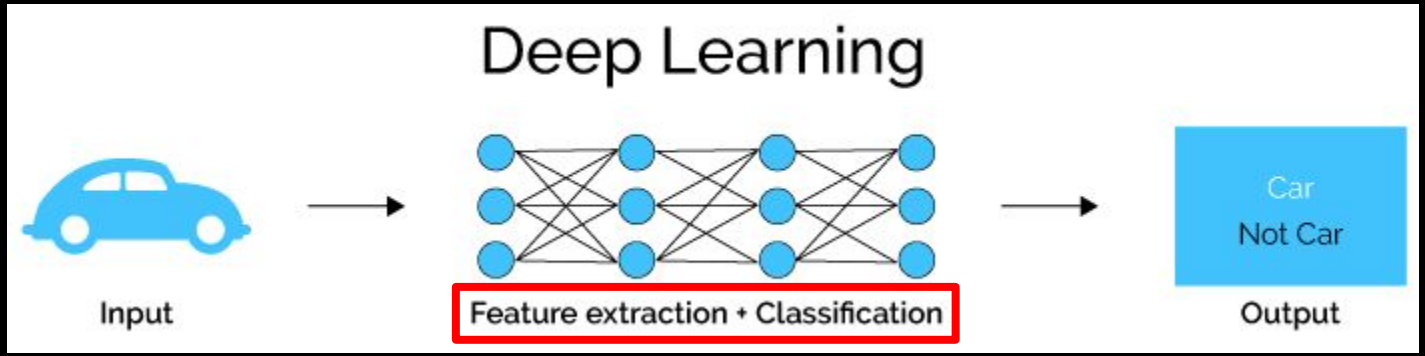


Feature Engineering

Learning :
Model Training

Inference
(prediction)

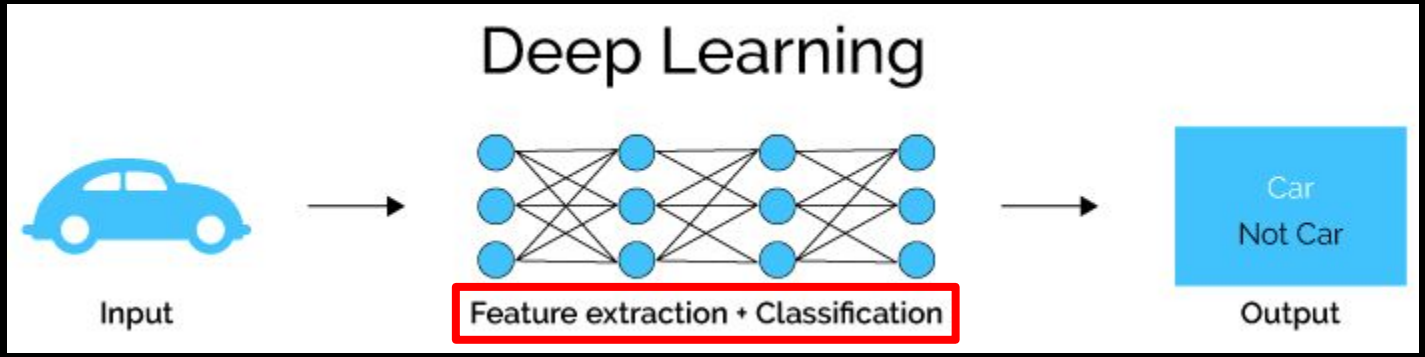


Feature Engineering

Learning : Model Training

Learning :
1. **Feature Learning**
2. **Model Training**

Inference (prediction)

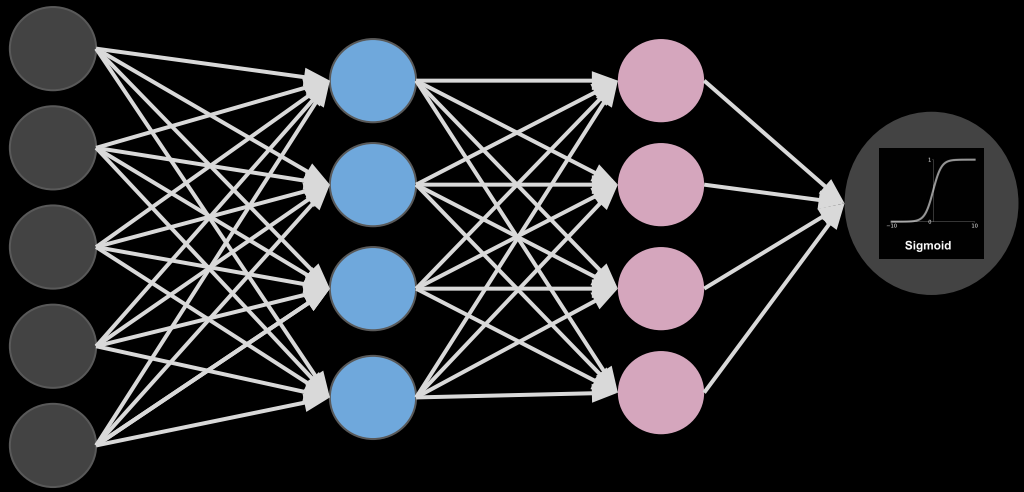


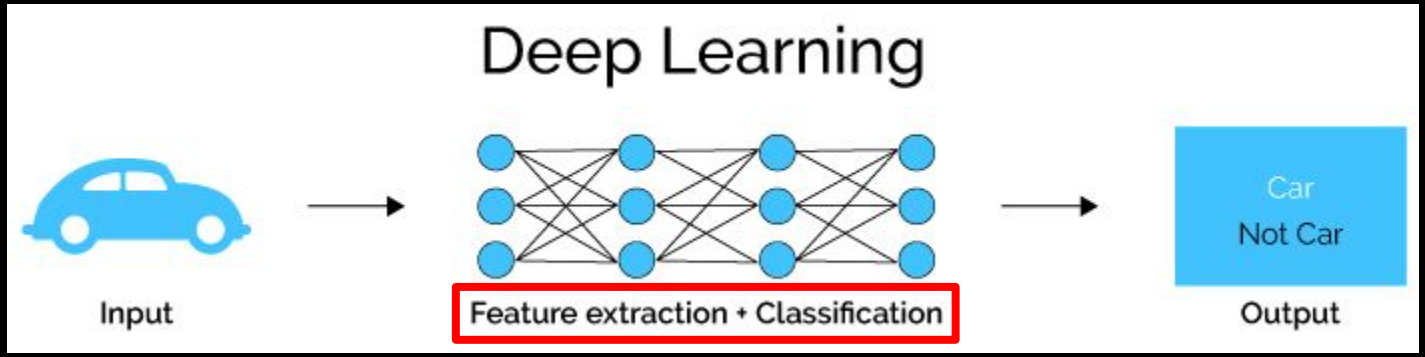
Feature Engineering

Learning :

1. **Feature Learning**
2. **Model Training**

Inference
(prediction)





Feature Engineering

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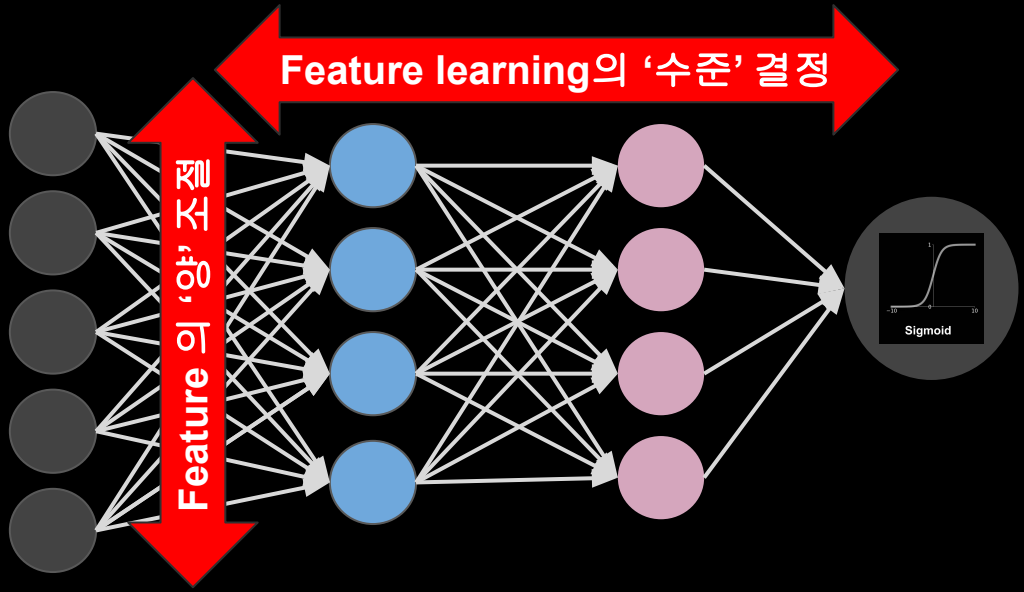
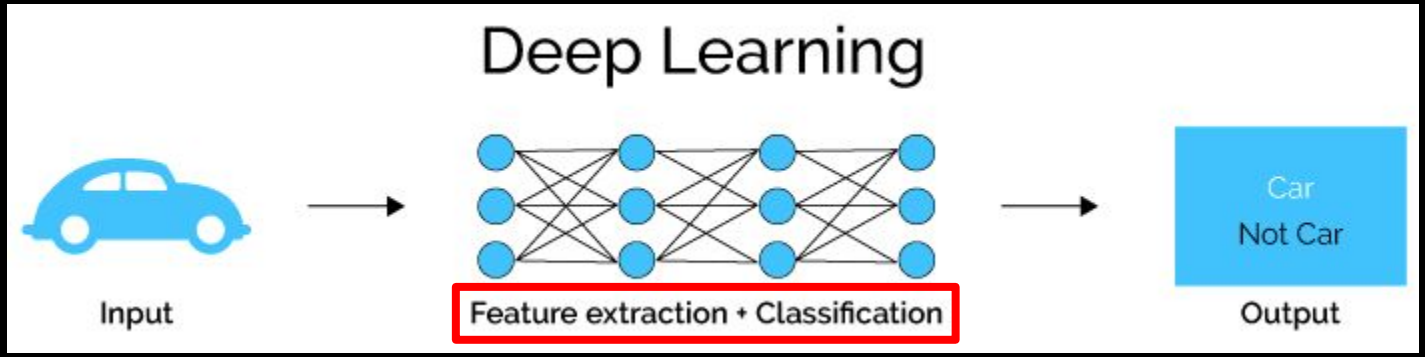


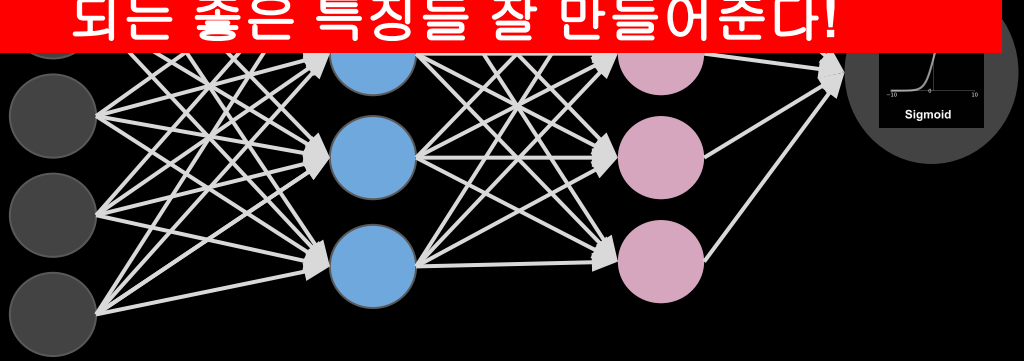


Feature Engineering

Learning :
1. **Feature Learning**
2. **Model Training**

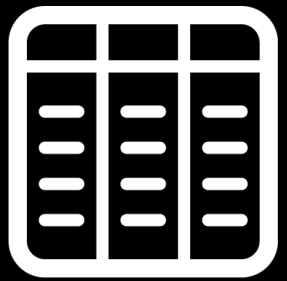
Inference
(prediction)

Feature Engineering
→ 자동화 되었음! (Feature Learning)
→ 공간만 만들어주면, 예측에 도움이 되는 좋은 특징들 잘 만들어준다!



Feature Engineering 난이도 비교
ML vs DL

Tabular Data



- 이미 잘 정제된 데이터
- 보통 데이터가 많지 않음. (col, row)
- 사람이 Feature Engineering 할만 함.

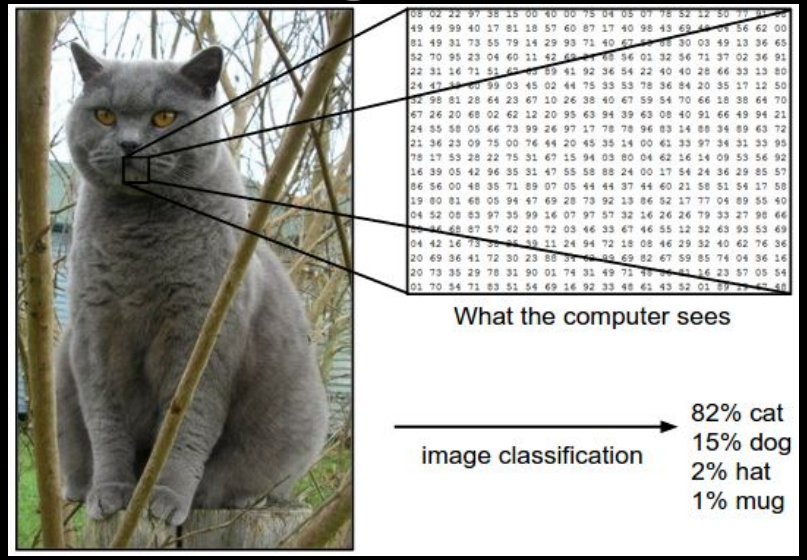
Machine Learning
(conventional)

Deep Learning

ML이 DL보다
- 성능이 좋거나
- 비슷함.

Feature Engineering 난이도 비교
ML vs DL

Image Data



Machine Learning
(conventional)

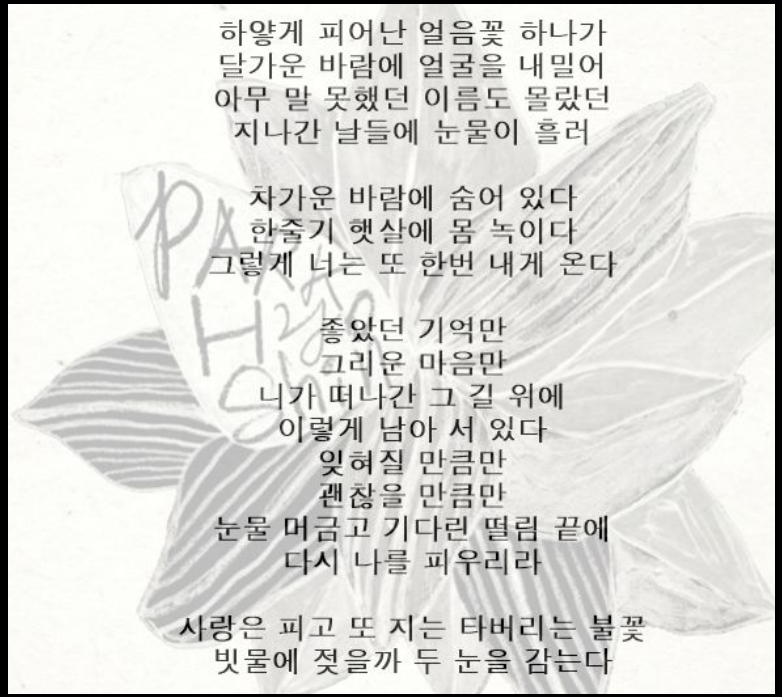
Deep Learning

Deep Learning

- **Feature Engineering**
  수작업 너무너무너무 힘듦.

Feature Engineering 난이도 비교
ML vs DL

Text Data



Machine Learning
(conventional)

Deep Learning

Deep Learning

- **Feature Engineering**
  수작업 너무너무너무 힘듦.

Machine Learning
Deep Learning

Machine Learning
Deep Learning
무엇이 언제 왜 필요한지!

다양한 형태의 데이터를 다루어 내려면!

다양한 형태의 데이터를 다루어 내려면!

Deep Learning