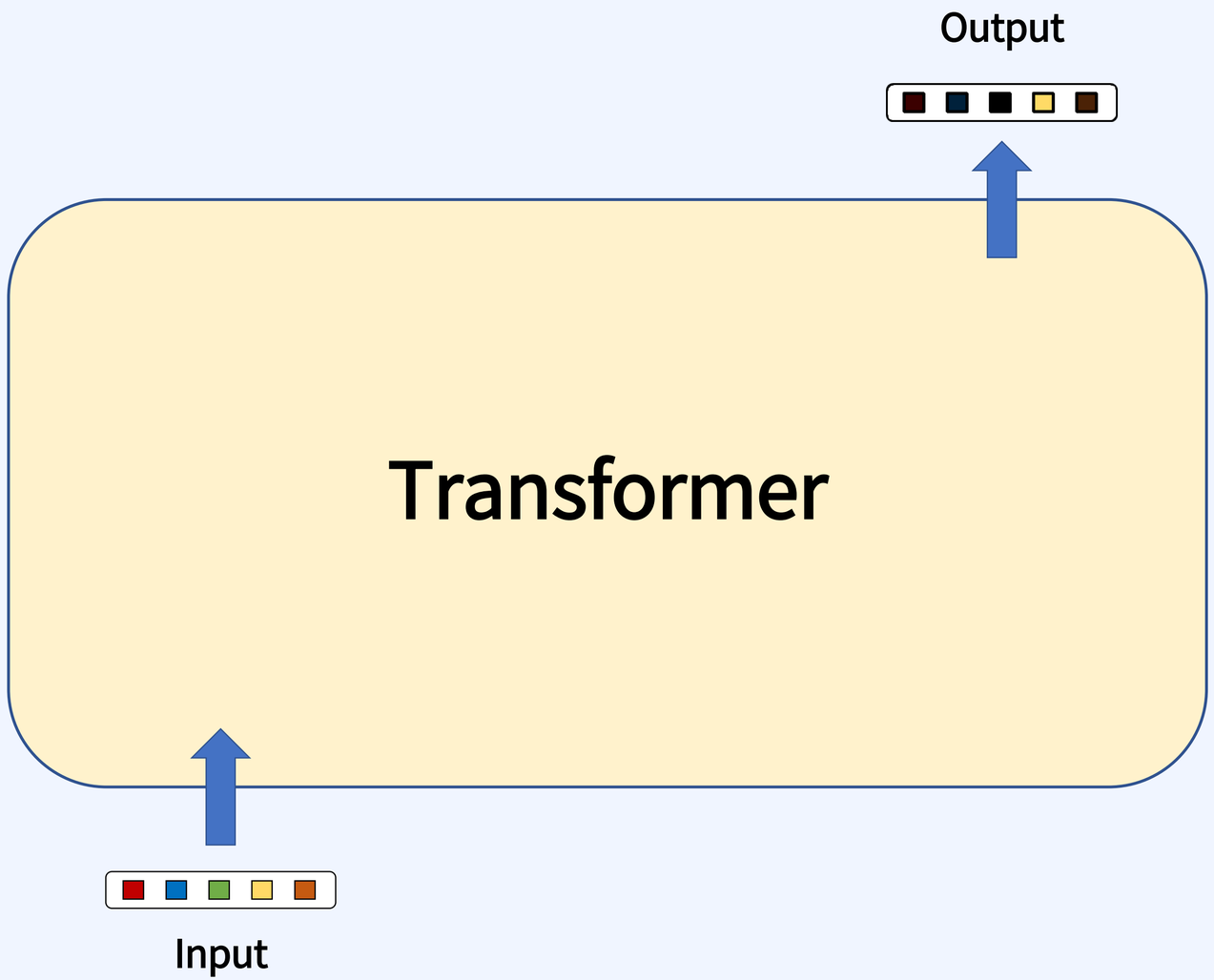
Context Understanding

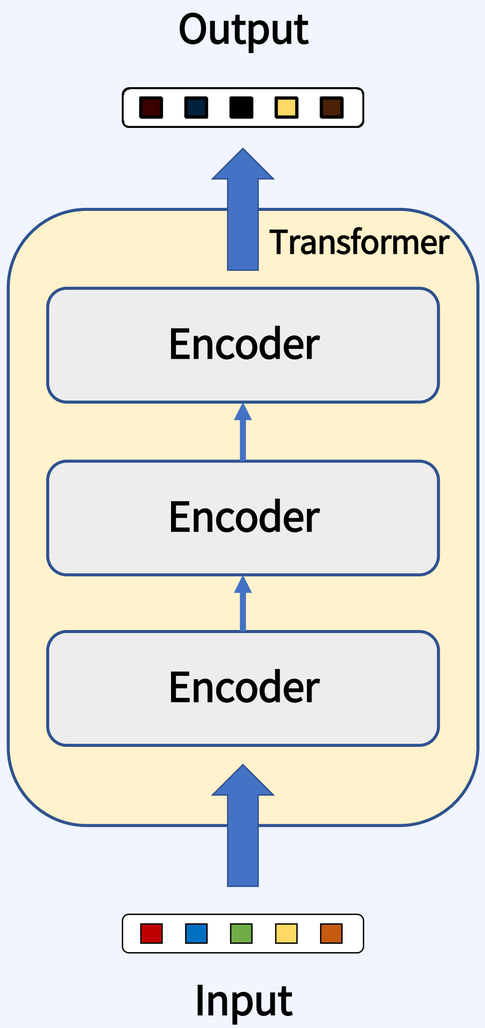
2 Transformer

Context Understanding
Transformer



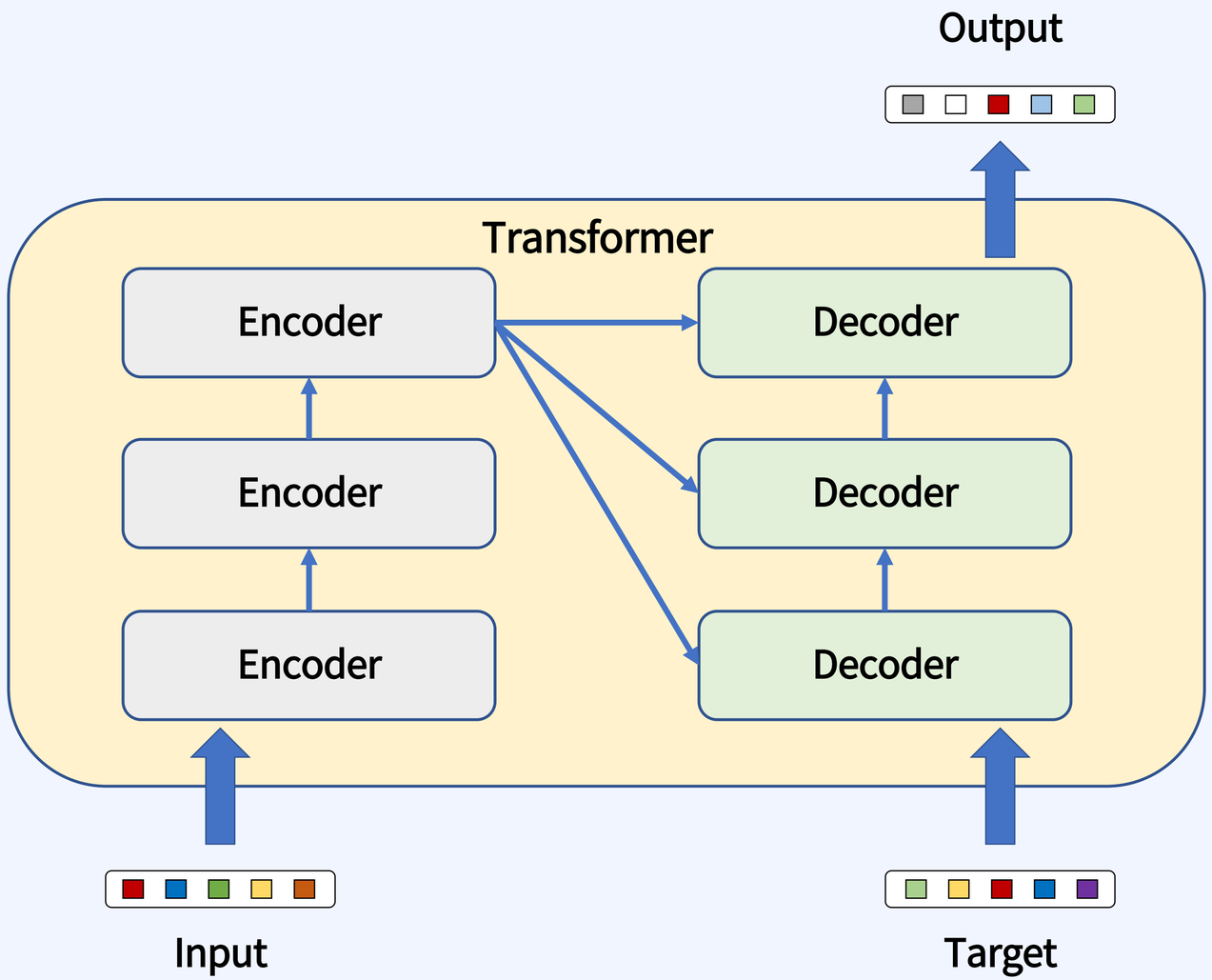
Attention Is All You Need, Vaswani et al., NIPS 2017

Context Understanding
Transformer



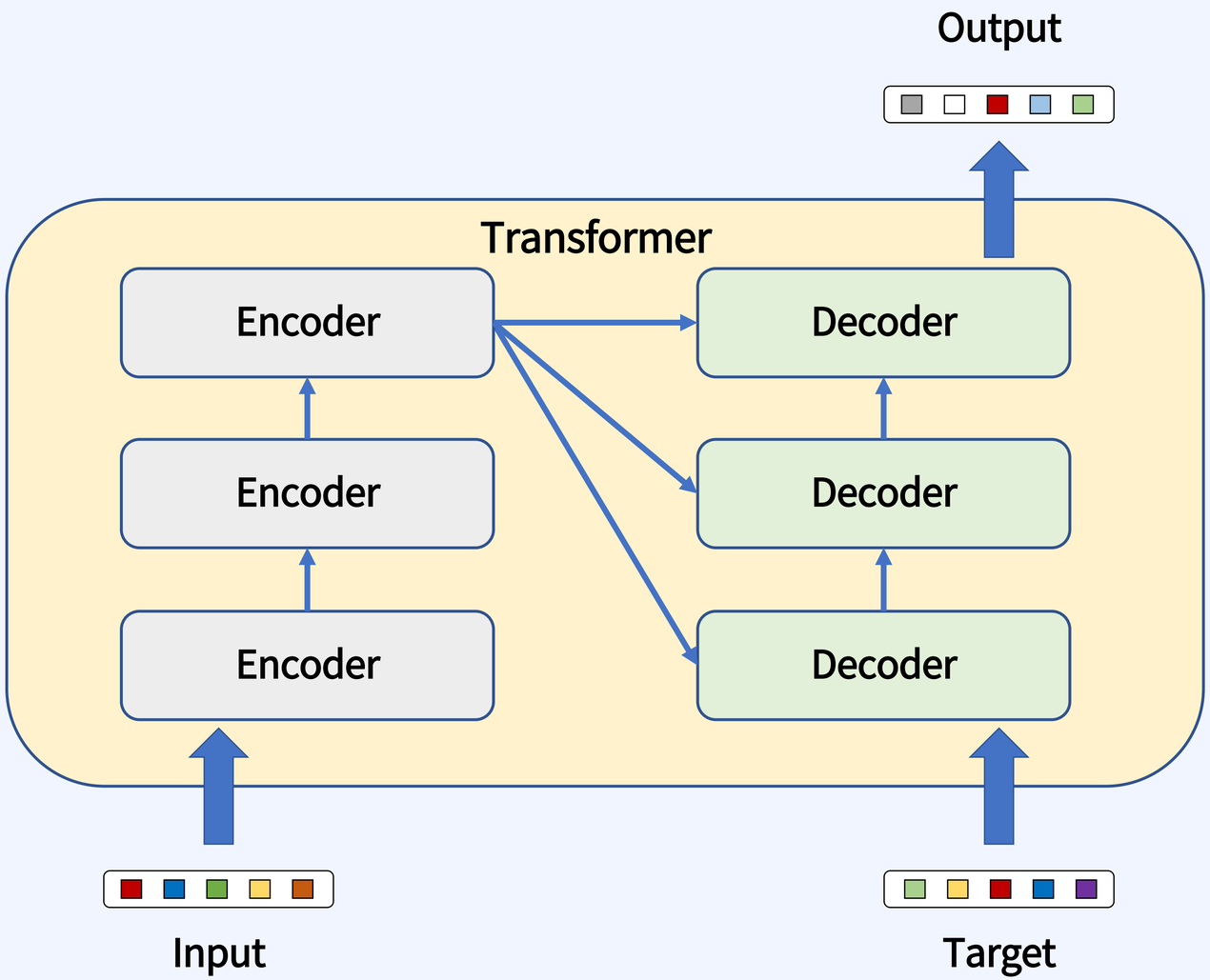
Attention Is All You Need, Vaswani et al., NIPS 2017

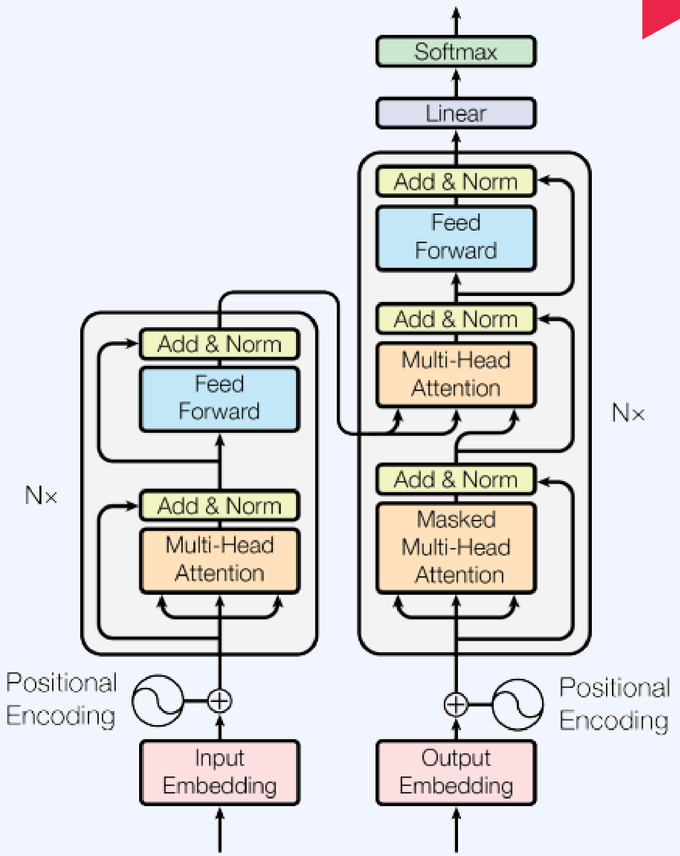
Context Understanding
Transformer



Attention Is All You Need, Vaswani et al., NIPS 2017

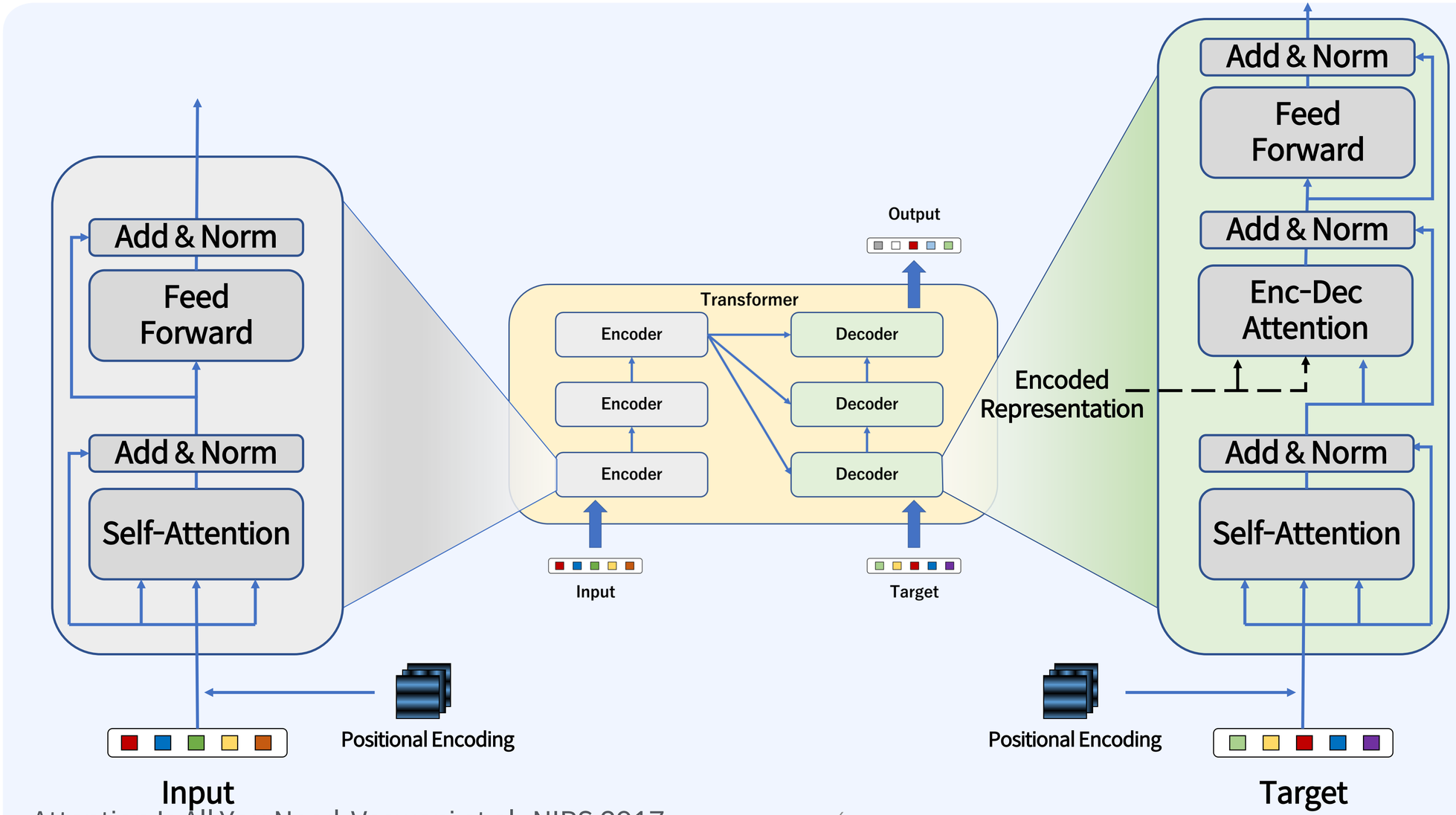
Context Understanding
Transformer





Attention Is All You Need, Vaswani et al., NIPS 2017

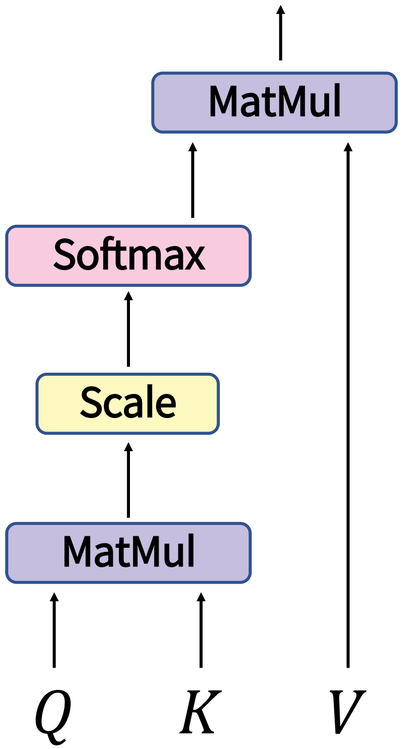
Context Understanding
Transformer



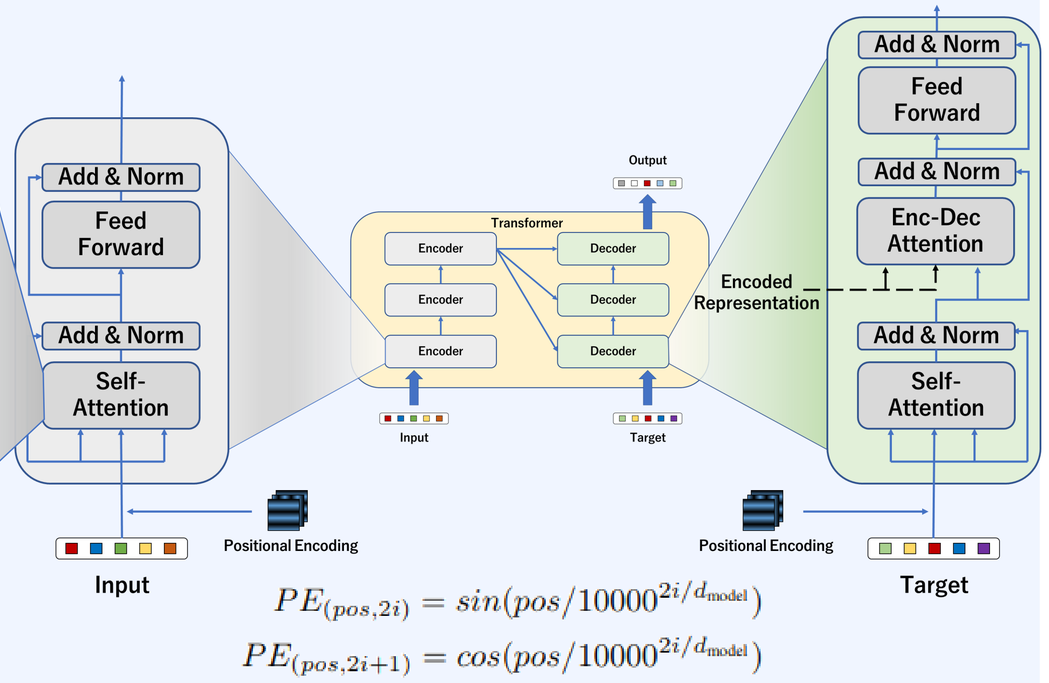
Attention Is All You Need, Vaswani et al., NIPS 2017

Context Understanding
Transformer

$$Att(Q,K,V) = Softmax\left(\frac{QK^{\top}}{\sqrt{d_k}}\right)V$$



$$Q = XW^{Q},\ K = XW^{K}, \mathrm{V} = XW^{V}$$

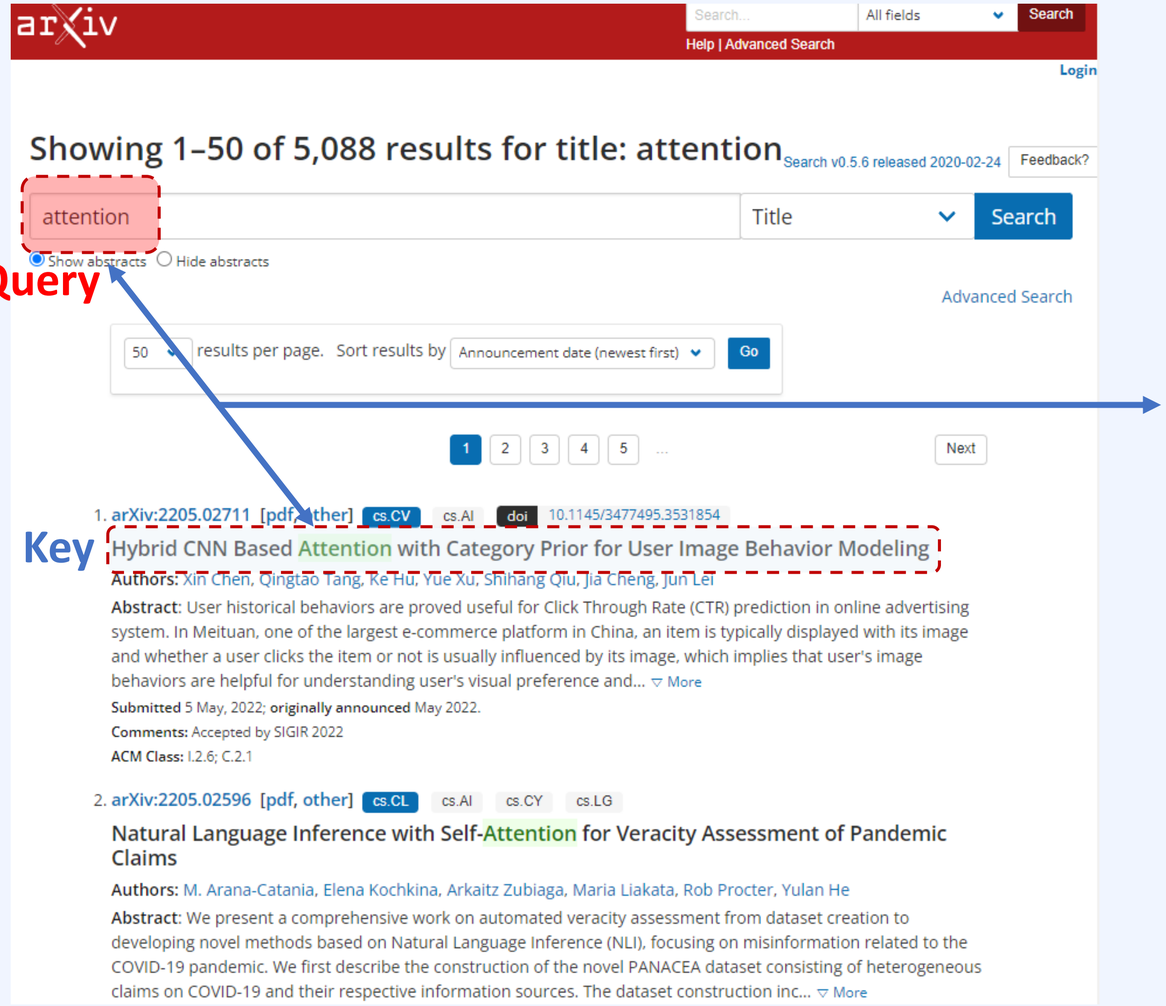


$$PE_{(pos,2i)} = sin(pos/10000^{2i/d_{\text{model}}})$$
$$PE_{(pos,2i+1)} = cos(pos/10000^{2i/d_{\text{model}}})$$

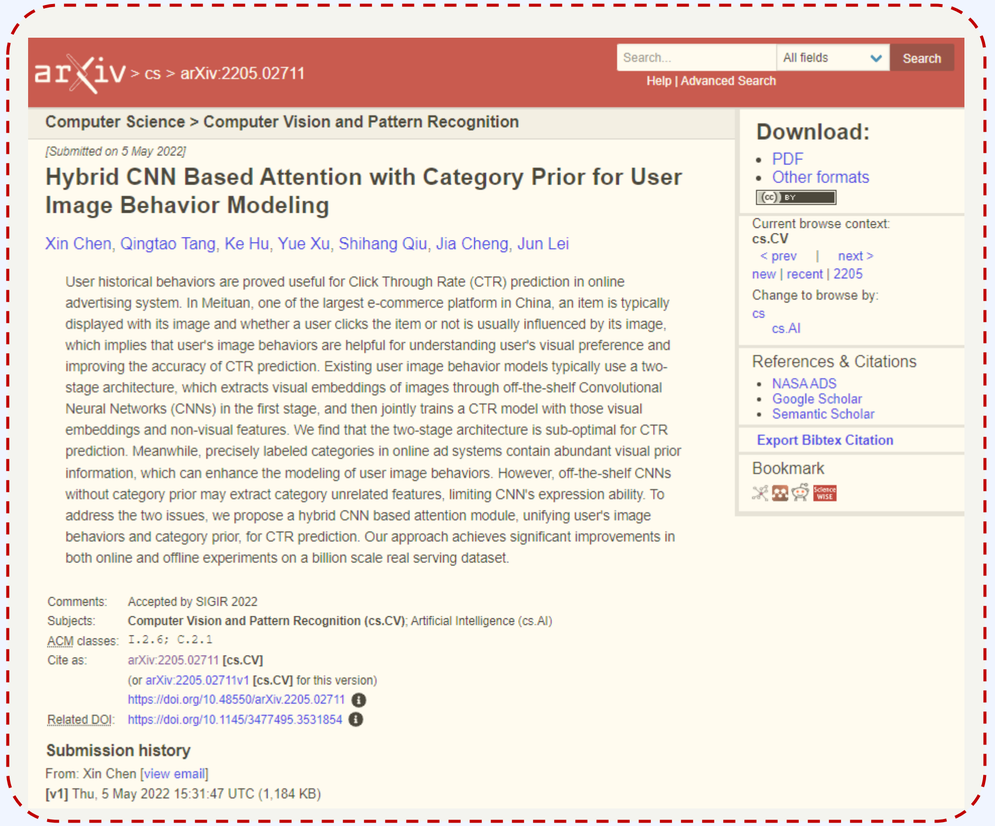
Attention Is All You Need, Vaswani et al., NIPS 2017

Context Understanding
Transformer

잠깐! Query, Key, Value 구조와 의미

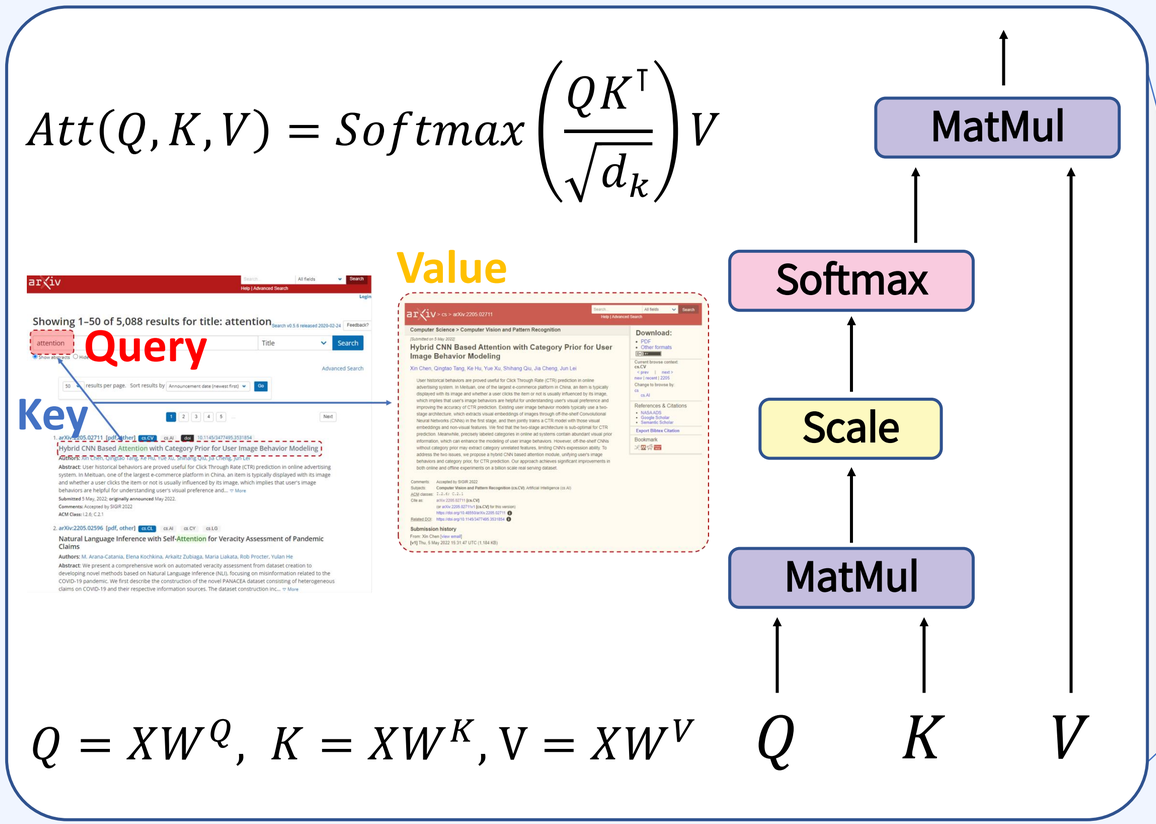


Value

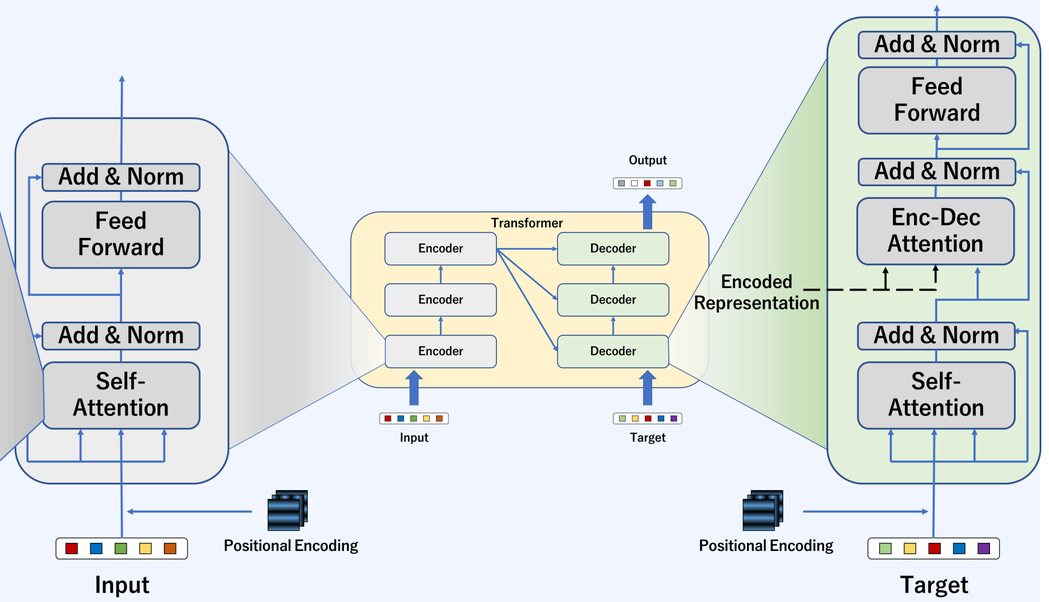


Context Understanding
Transformer

$$Att(Q,K,V) = Softmax\left(\frac{QK^{\top}}{\sqrt{d_k}}\right)V$$

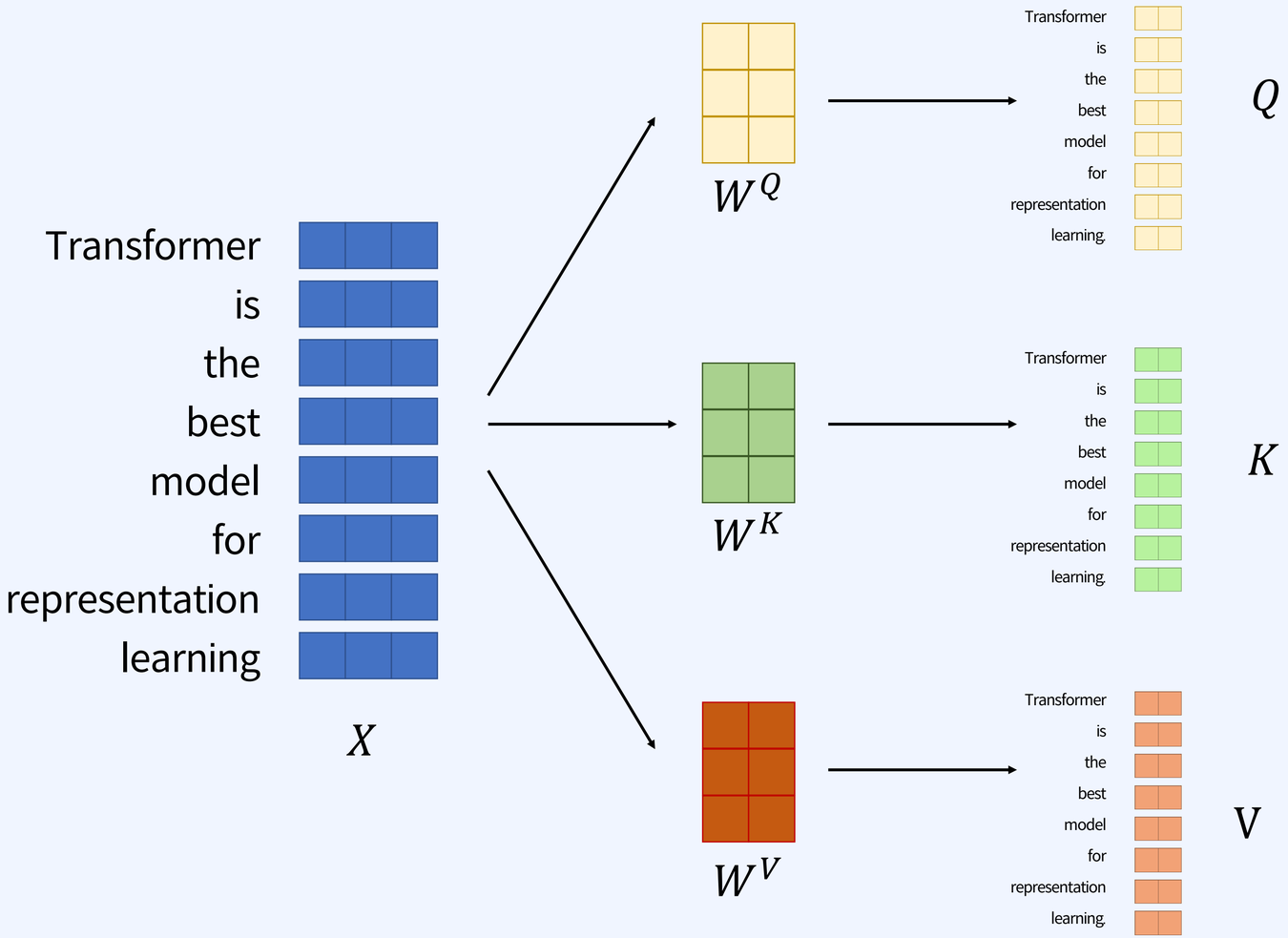


$$Q = XW^{Q},\ K = XW^{K}, \mathrm{V} = XW^{V}$$



Attention Is All You Need, Vaswani et al., NIPS 2017

Context Understanding
Transformer



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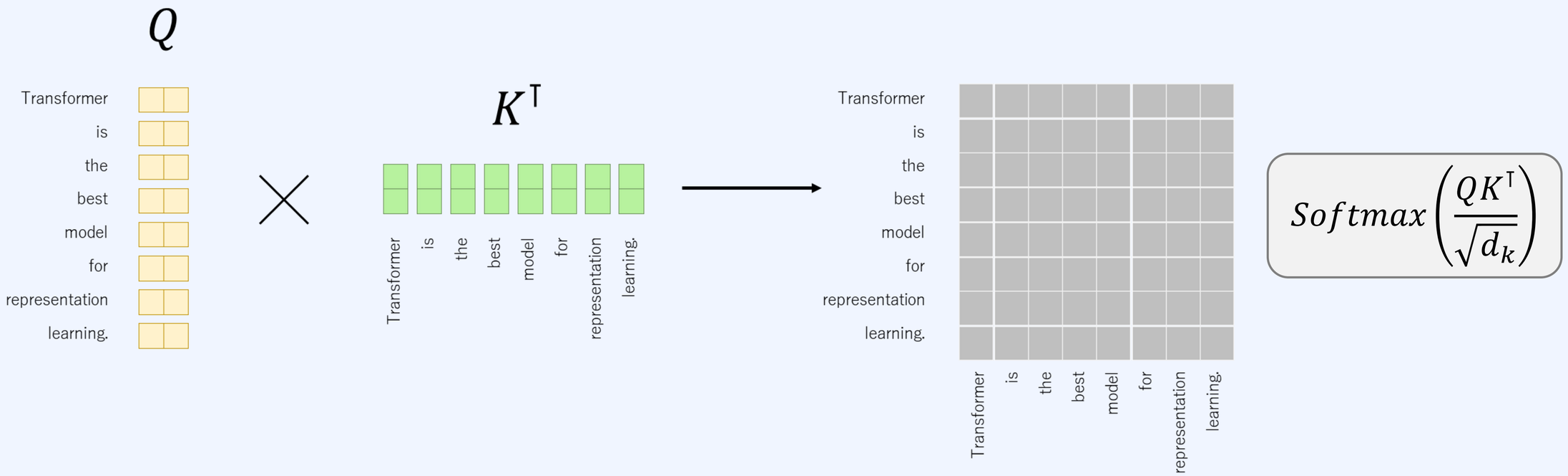
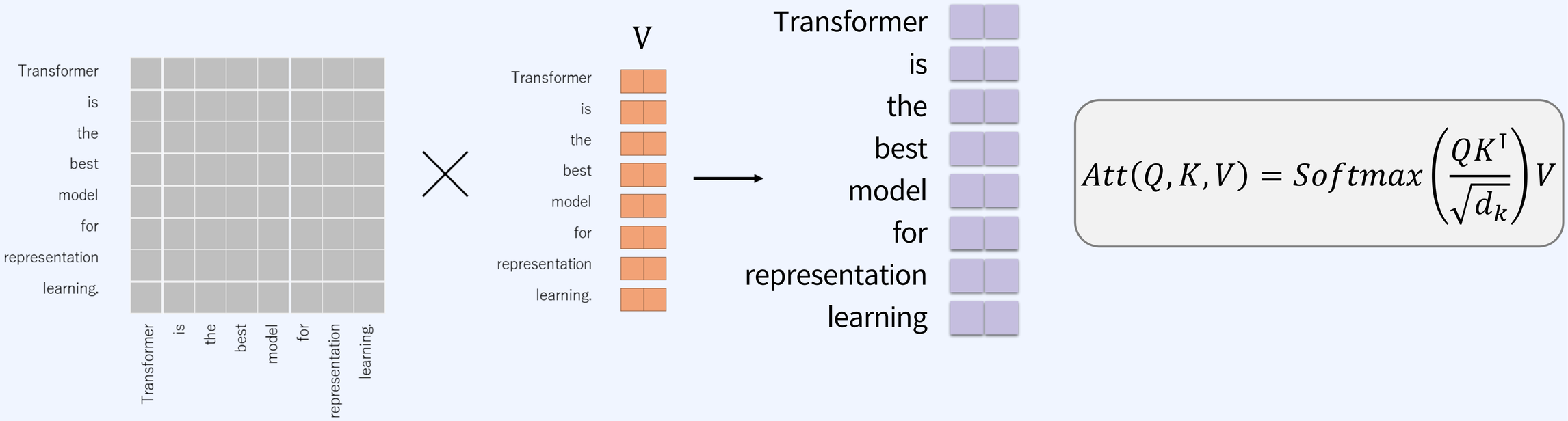
Attention Is All You Need, Vaswani et al., NIPS 2017

Context Understanding
Transformer



Attention Is All You Need, Vaswani et al., NIPS 2017

Context Understanding
Transformer



$$Att(Q,K,V) = Softmax\left(\frac{QK^{\intercal}}{\sqrt{d_k}}\right)V$$

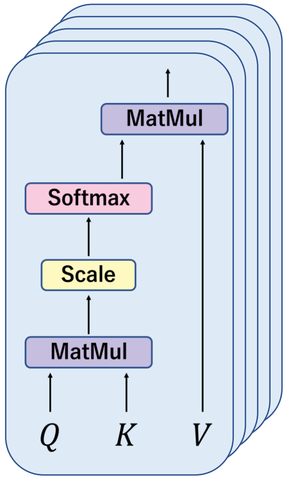
Attention Is All You Need, Vaswani et al., NIPS 2017

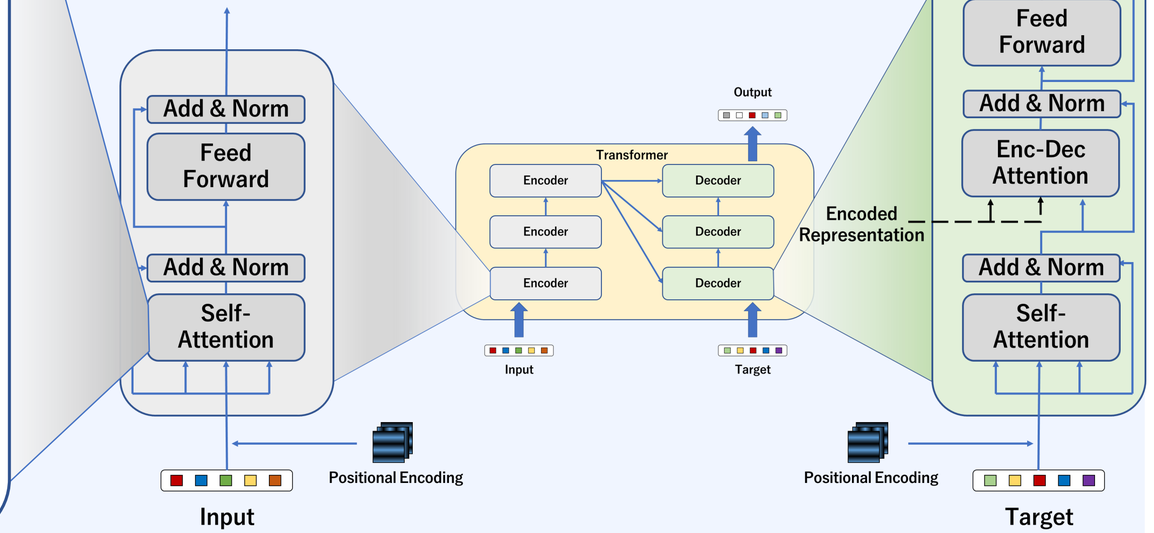
Context Understanding
Transformer

$$MultiHead(Q, K, V) = Concat(Z_1, Z_2, \dots, Z_h)W^O$$

$$Z_i = Att(Q_i, K_i, V_i) = Softmax\left(\frac{Q_i K_i^{\top}}{\sqrt{d_k}}\right)V_i$$

$$Q_i = XW^{Q_i},\ K_i = XW^{K_i}, V_i = XW^{V_i}$$
$$(i = 1,2, \dots, h)$$

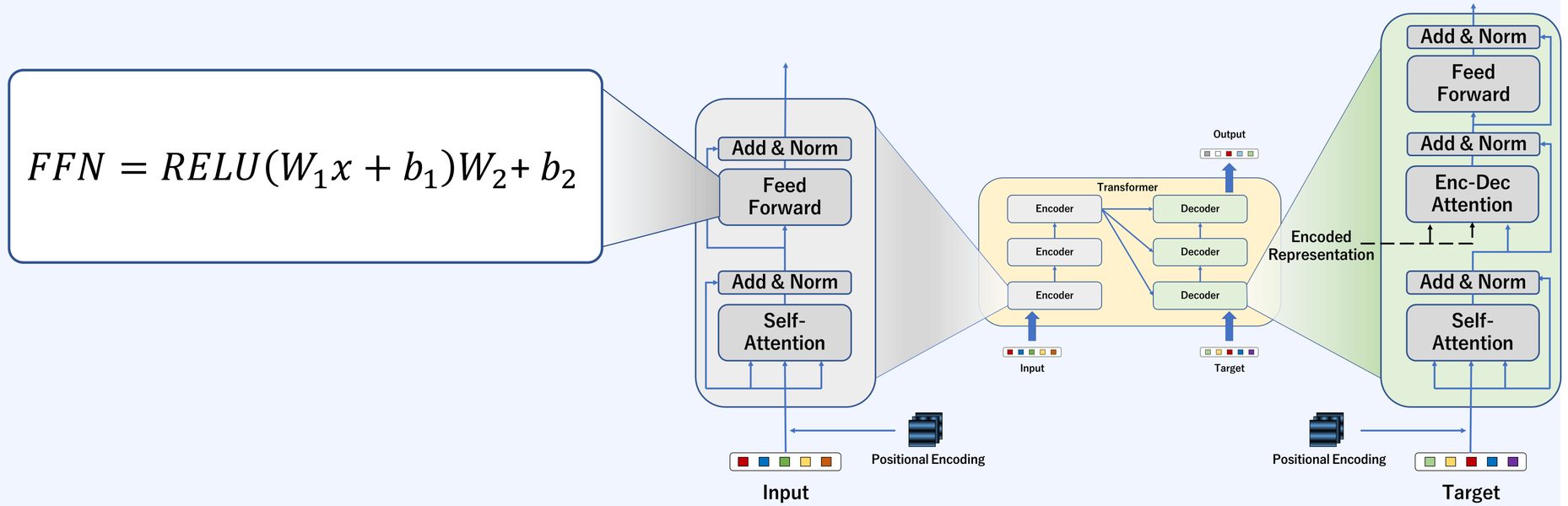




Attention Is All You Need, Vaswani et al., NIPS 2017

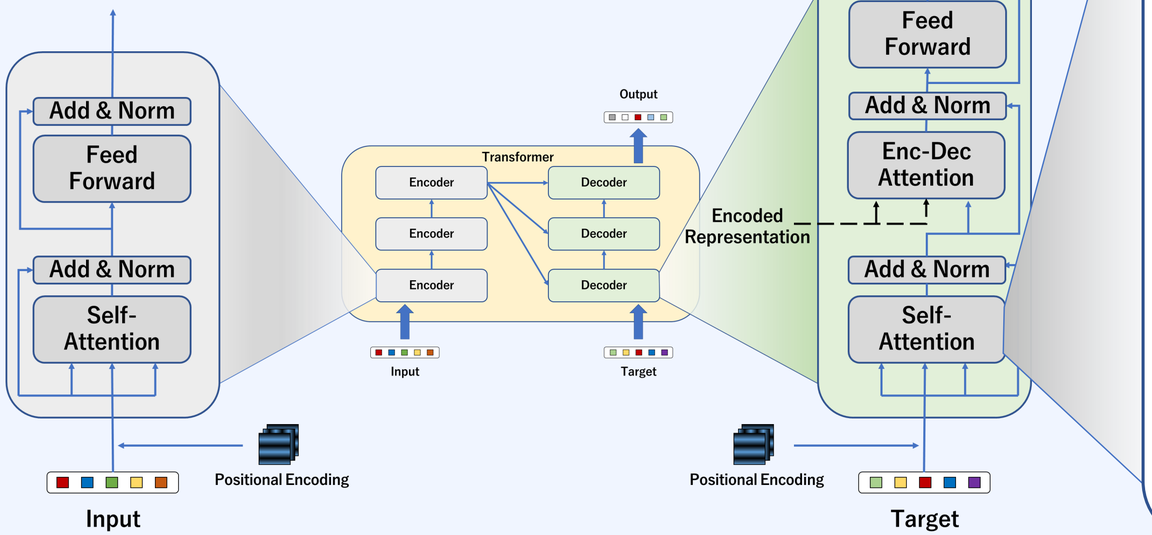
Context Understanding
Transformer

$$FFN = RELU(W_1 x + b_1)W_2 + b_2$$

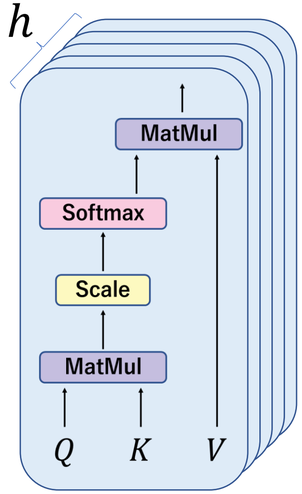


Attention Is All You Need, Vaswani et al., NIPS 2017

Context Understanding
Transformer



$$MultiHead(Q,K,V) = Concat(Z_1, Z_2, \dots, Z_h)W^O$$

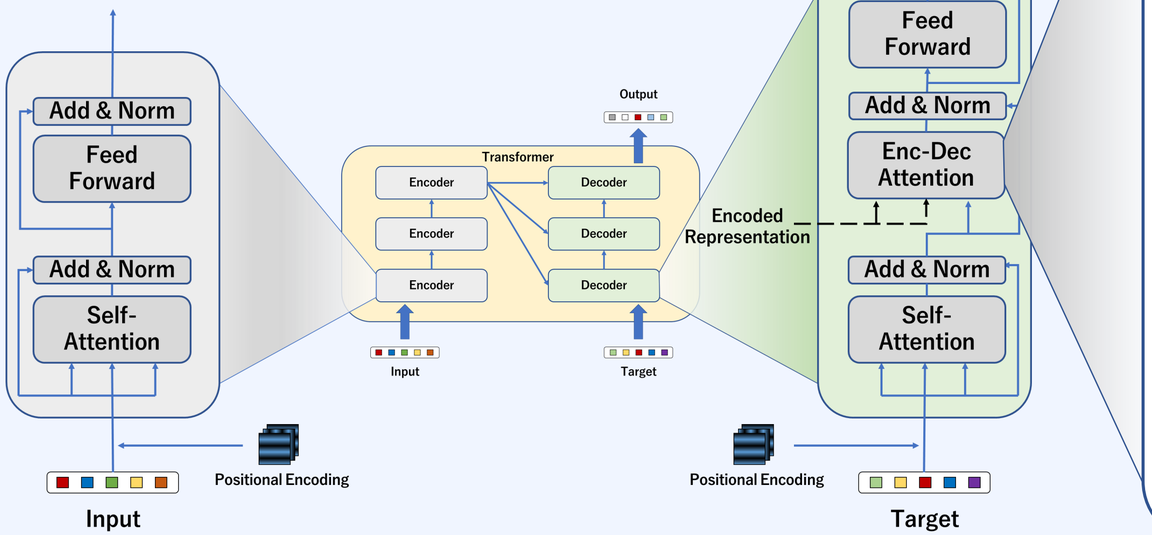


$$Z_i = Att(Q_i, K_i, V_i) = Softmax\left(\frac{Q_i K_i^{\top}}{\sqrt{d_k}}\right)V_i$$

$$Q_i = YW^{Q_i},\ K_i = YW^{K_i}, V_i = YW^{V_i}$$
$$(i = 1,2,\dots,h)$$

Attention Is All You Need, Vaswani et al., NIPS 2017

Context Understanding
Transformer



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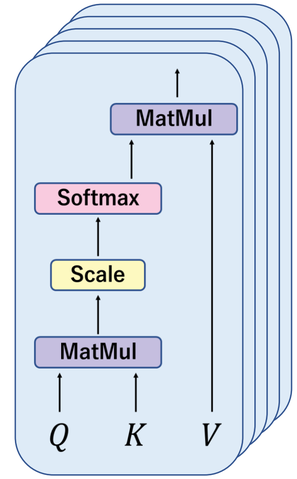
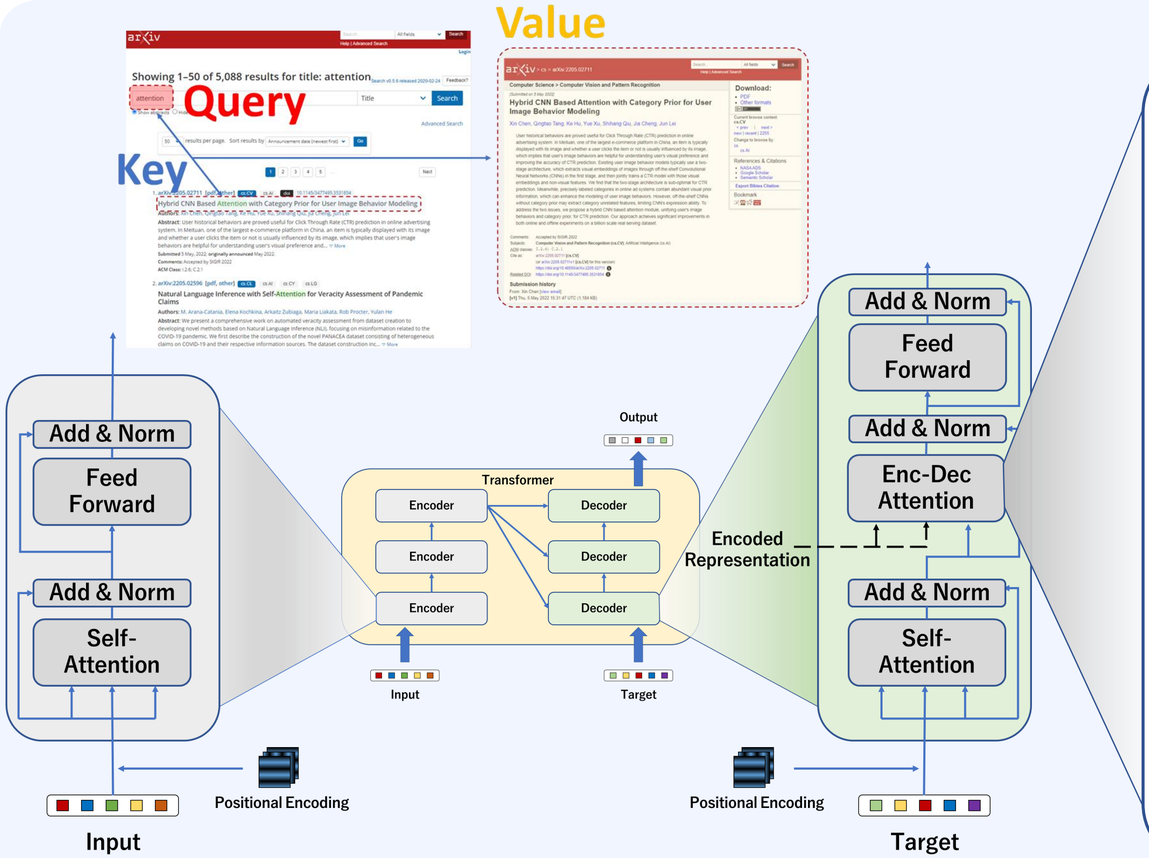


$$Q_i = \boldsymbol{Y}W^{Q_i},\ K_i = \boldsymbol{X}W^{K_i}, V_i = \boldsymbol{X}W^{V_i}$$
$$(i = 1,2,\dots,h)$$

Attention Is All You Need, Vaswani et al., NIPS 2017

Context Understanding
Transformer



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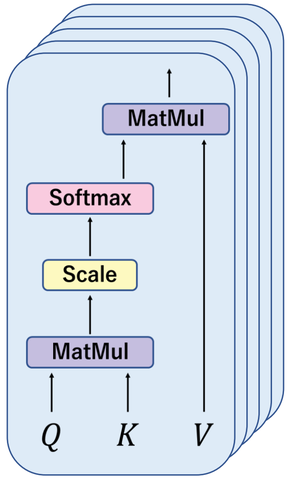

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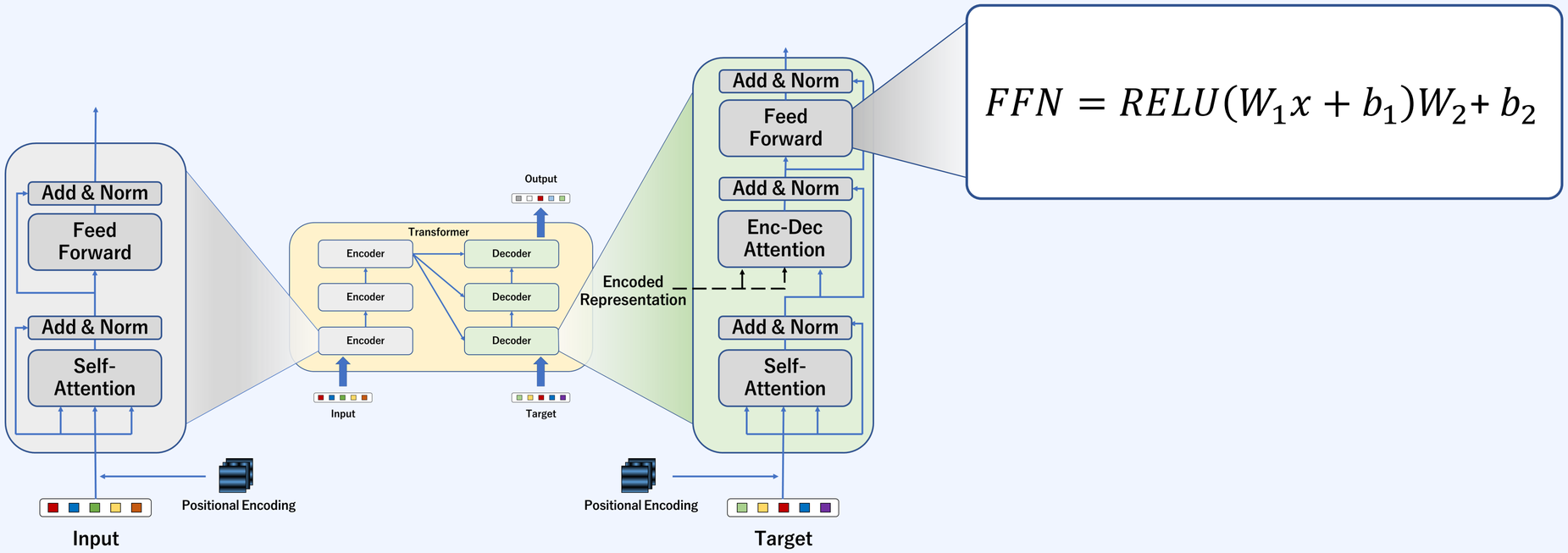
Context Understanding
Transformer



Attention Is All You Need, Vaswani et al., NIPS 2017

Transformer

코드 구현

Context Understanding
Transformer (코드 구현)

Context Understanding
Transformer (코드 구현)

Context Understanding
Transformer (코드 구현)

Context Understanding
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Context Understanding
Transformer (코드 구현)

Context Understanding
Transformer

번호.
클립제목
클립제목

Google Analytics 를 통해 Customer Journey를 이해할 수 있습니다.
GA가 지원하는 다양한 기능으로 데이터에서 Insight를 얻고,
이를 기반으로 마케팅 Action을 실행할 수 있으며,
비즈니스의 성과를 극대화할 수 있습니다.

강사님 크로마키
280px * 400px

What is Google Analytics?

Google Analytics is the #1 Web Analytics Tool in the world: a Free service that lets you understand how users get to your site and apps, what they do while there, and take action through targeting.

강사님 크로마키
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다양해진 사용자의 행동 패턴

Multi Channel Device

Multi Channel Device

다양한 디바이스 경로를 통한 유입이 가능해짐으로써

고객 온라인 행동 패턴 수치화, 고객 데이터 활용 유용한 환경 도래

강사님 크로마키
280px * 400px

Google Analytics의 목표를 알아보자

홈페이지 목표

Ecommerce	Selling products or services
Lead generation	Collecting potentialleads
Content publisher	Engagement & fréquent visitation
Online information	Help customers find information

강사님 크로마키
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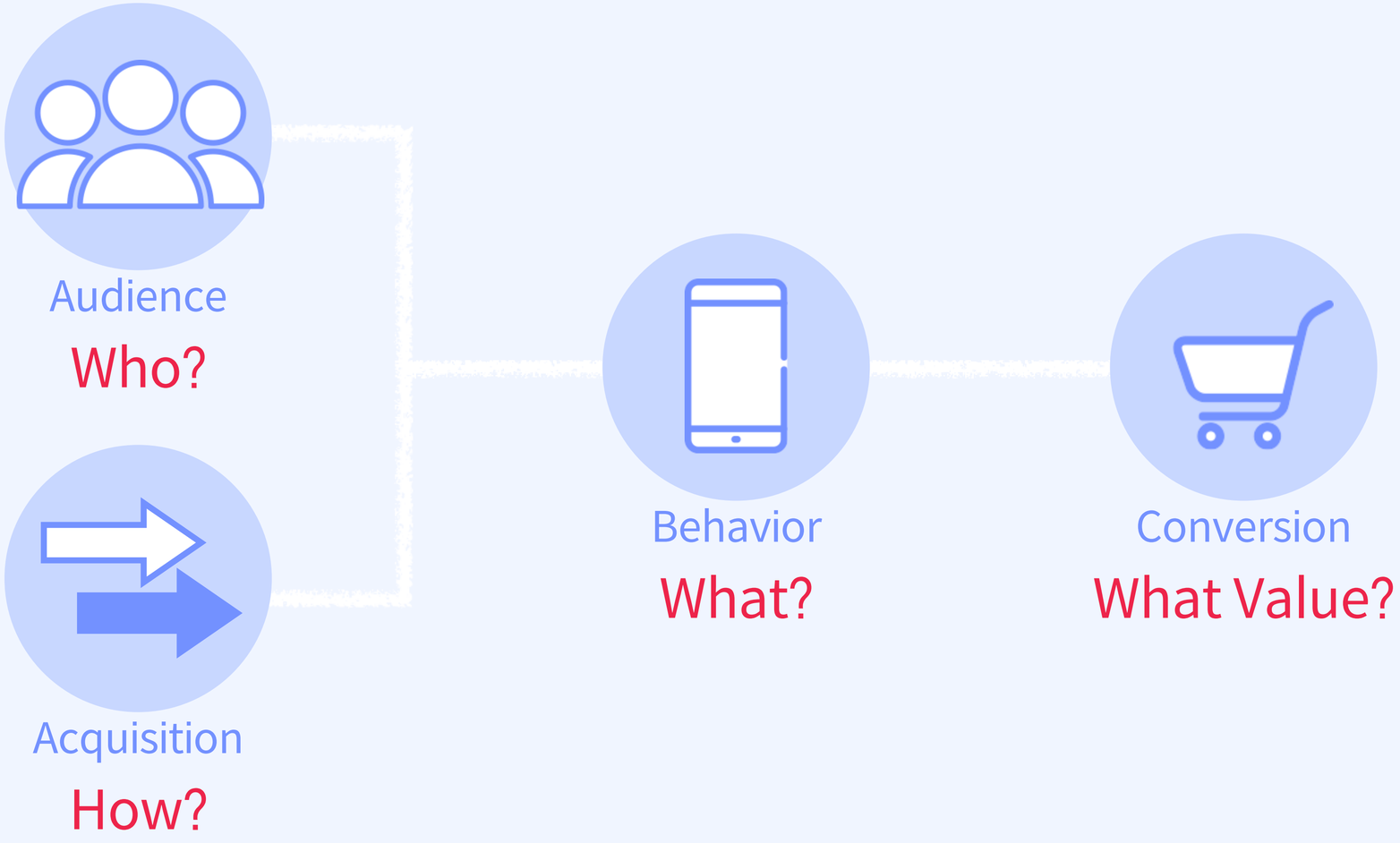
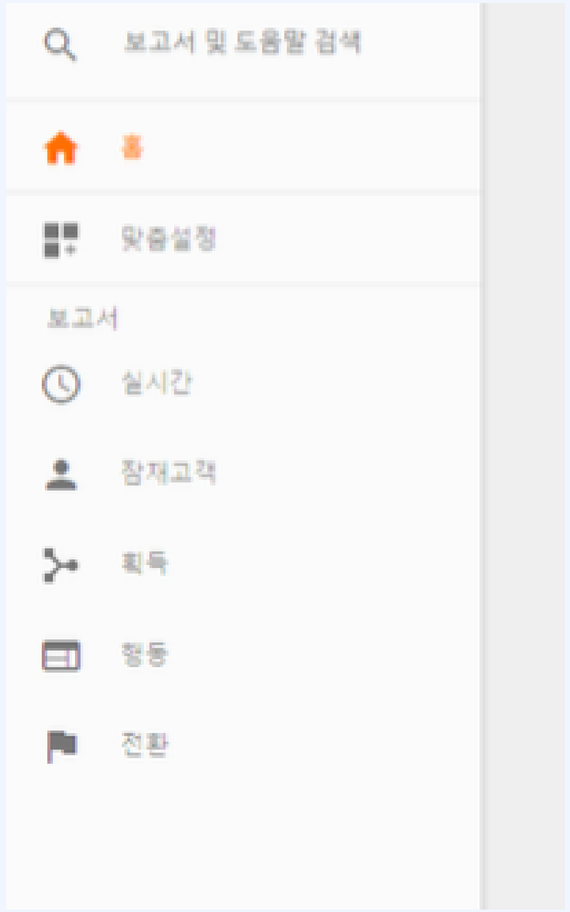
Google Analytics
보고서 흐름



강사님 크로마키
280px * 400px

Google Analytics
보고서 흐름



잠재고객
접속 기기
인구통계 (성별/연령)
기술환경
접속 위치

잠재고객
접속 기기
인구통계 (성별/연령)
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접속 위치

잠재고객
접속 기기
인구통계 (성별/연령)
기술환경
접속 위치

강사님 크로마키
280px * 400px

커리큘럼에 맞는 강의 제목

3 커리큘럼에 맞는 클립 제목

강사님 크로마키

280px * 400px

커리큘럼에 맞는 강의 제목

4 커리큘럼에 맞는 클립 제목

강사님 크로마키

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커리큘럼에 맞는 강의 제목

5 커리큘럼에 맞는 클립 제목

강사님 크로마키
280px * 400px

예비 비즈니스 활동과
데이터 정련하기

```
>>> a = “Life is too short, you need python”
>>> if ‘wife’ in a :
***     print(‘wife’)
*** elif ‘python’ in a and ‘you’ not in a :
***     print(‘wife’)
```

```
>>> a = “Life is too short, you need python”
>>> if ‘wife’ in a :
***     print(‘wife’)
```

강사님 크로마키
280px * 400px

자바(Java)란?

프로그래밍 언어(programing language)

컴퓨터 프로그램(애플리케이션)을 만드는데 사용

실행환경(JRE) + 개발도구(JDK) + 라이브러리(API)

쉽고 빠르게 애플리케이션 개발 가능

강사님 크로마키

280px * 400px

자바는 어디에 쓰이나요?

- PC 애플리케이션
- 웹 애플리케이션
- 모바일 애플리케이션 (안드로이드)
- 빅 데이터(Big Data)
- 게임(마인 크래프트), 과학, 소형 기기 등

강사님 크로마키
280px * 400px

자바의 역사

- JDK 1.0 (January 23, 1996)
- JDK 1.0 (January 23, 1996)
- JDK 1.0 (January 23, 1996)
- JDK 1.0 (January 23, 1996)
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강사님 크로마키
280px * 400px

예비 비즈니스 활동과 데이터 정련하기

정보 요구를 충족할 수 있는 데이터 인지를 확인

- 모든 데이터는 활동에 의해 생성되는가?
- 주제영역 (Subject Area) 표현

상호작용성 (CRUD Matrix) 분석을 통한 정련화

정보 요구를 충족할 수 있는 비즈니스 활동 인지를 확인

- 모든 활동은 적어도 하나의 데이터에 대하여 작용하고 있는가?

강사님 크로마키
280px * 400px