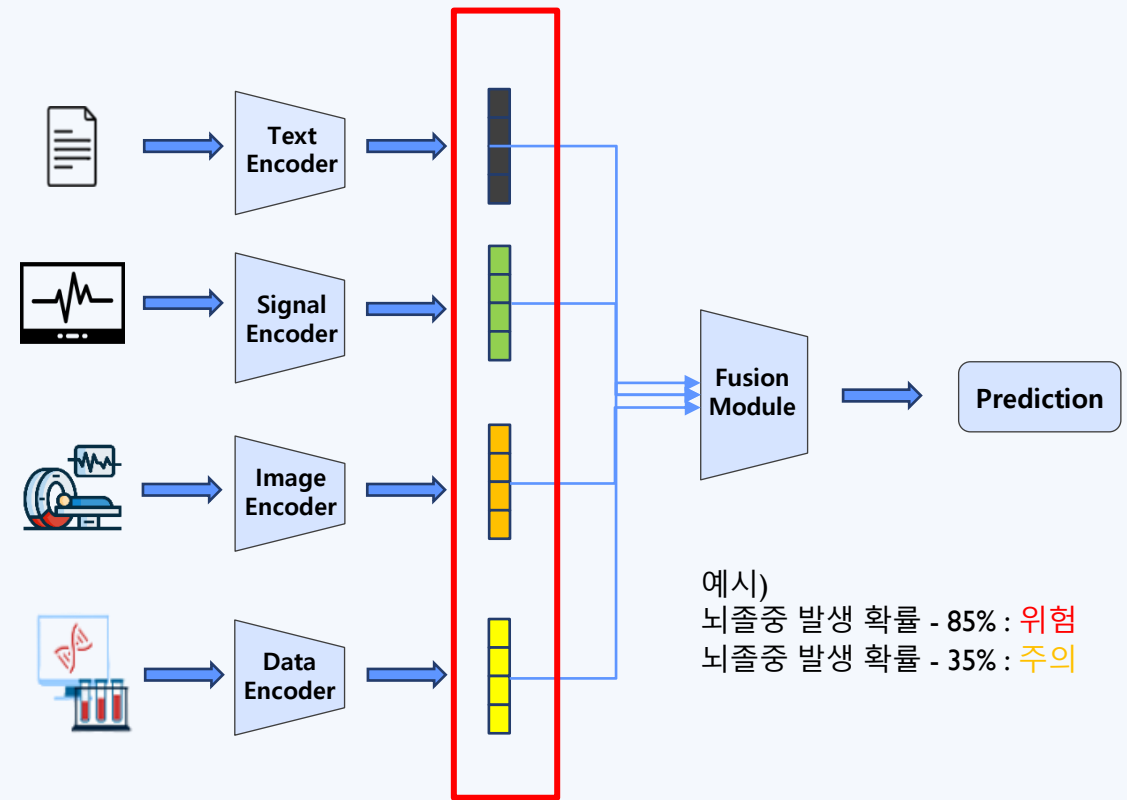


# MUG-ECG : MULTI modality Generative ElectroCardioGram platform

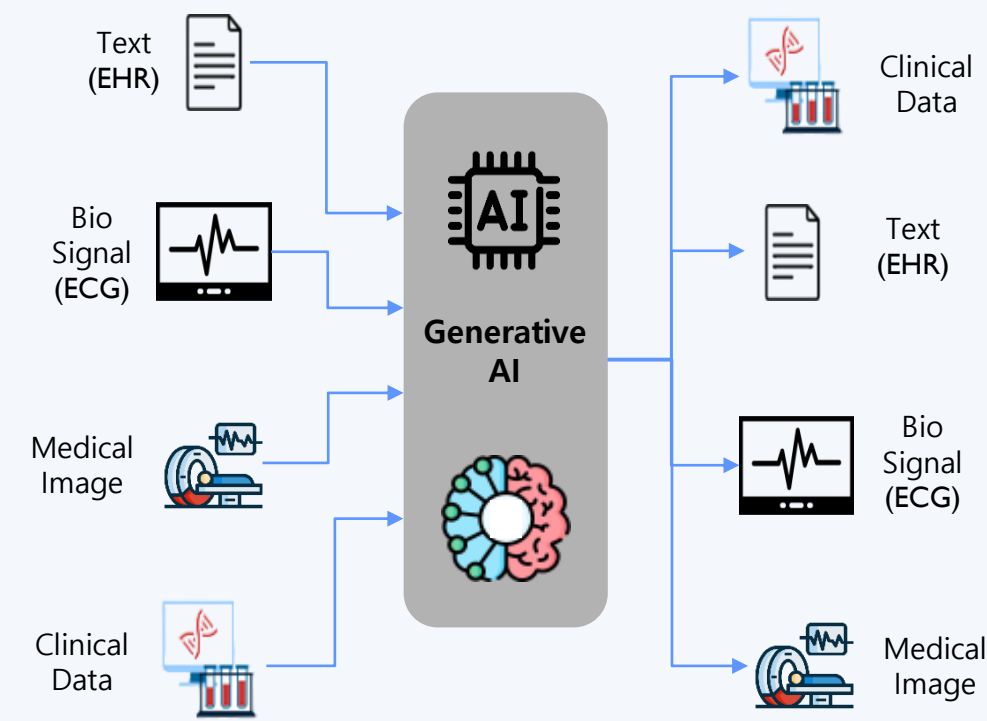
Wellysis



ECG, Text, Image 유형의 데이터를  
공통 분석 가능한 **벡터** 형태로 변환



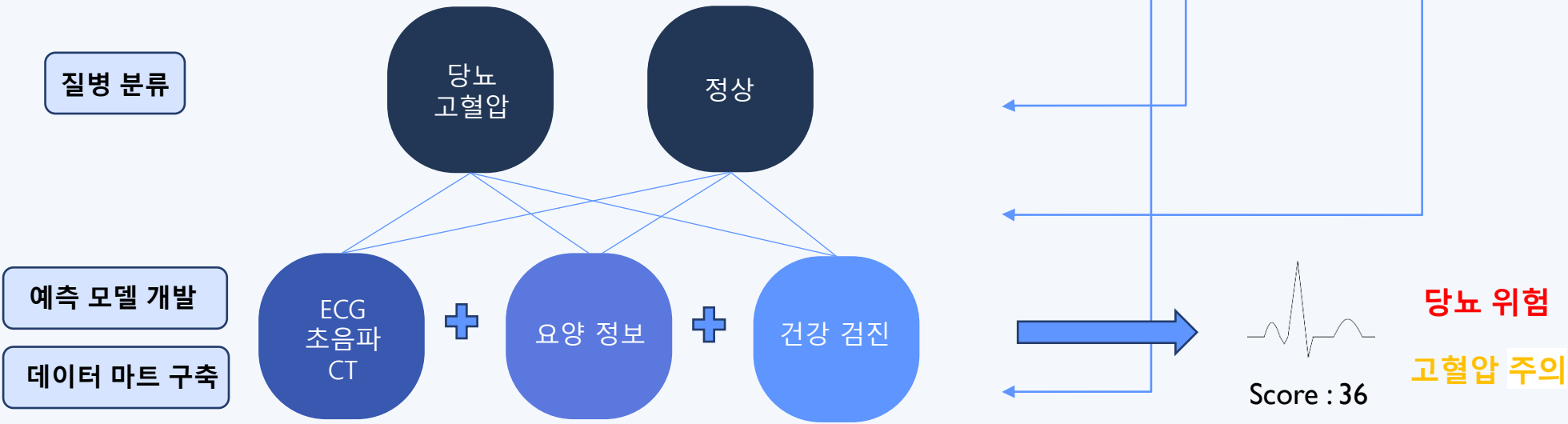
멀티모달리티 질병 예측 모델



멀티모달리티 데이터 생성 모델

기준년도	가입자일련	시도코드	성별	연령대코드	신장(5cm)	체중(5kg)	허리둘레	시력(좌)	시력(우)	청력(좌)	청력(우)	수축기혈압	이완기혈압	식전혈당(공복혈당)	총콜레스테롤	혈색소	요단백
2022	702763	41	2	14	160	75	89	1	1	1	1	127	73	84		14.8	1
2022	765435	41	2	9	150	45	68	1	1	1	1	127	75	85		13.1	1
2022	343621	41	2	13	150	60	78.8	1	1	1	1	135	81	105		13	1

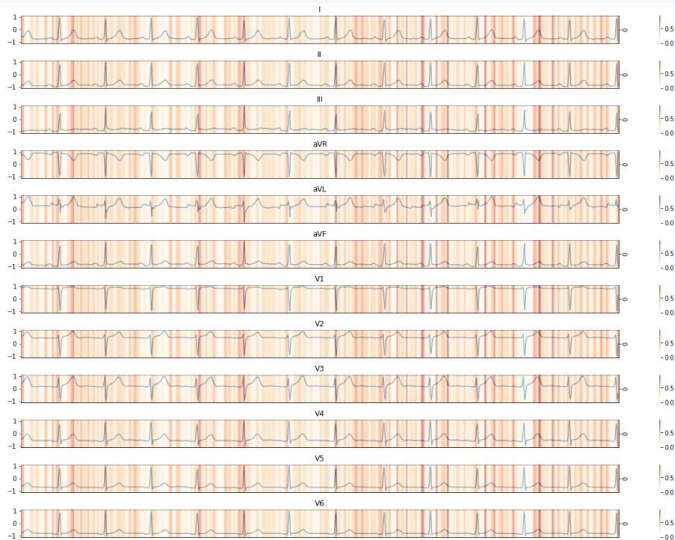
기준년도	가입자일련번호	진료내역일련	성별코드	연령대코드	시도코드	요양개시일자	서식코드	진료과목코드	주상병코드	부상병코드	요양일수	입내원일수
2022	323087	671512	2	14	41	2022-03-25	03	01	I109	E785	1	1
2022	16446	671525	2	15	41	2022-03-17	03	01	I109	E782	1	1
2022	424443	671526	2	15	41	2022-03-02	03	01	I109	K769	1	1
2022	783837	671529	2	14	41	2022-03-24	03	01	I109	E119	1	1
2022	353631	671541	2	16	41	2022-03-16	03	01	I109	G470	1	1
2022	107306	671559	2	15	41	2022-03-22	03	01	E119	E782	1	1



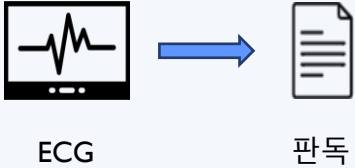
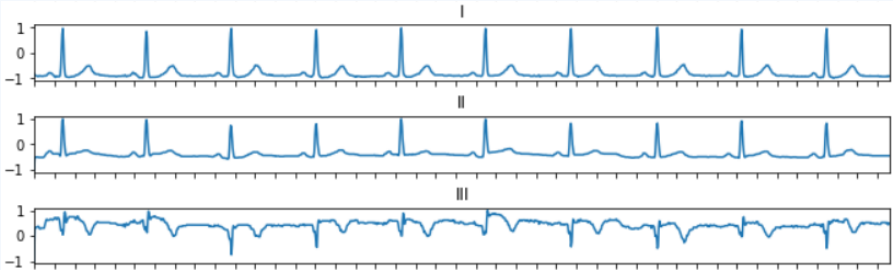
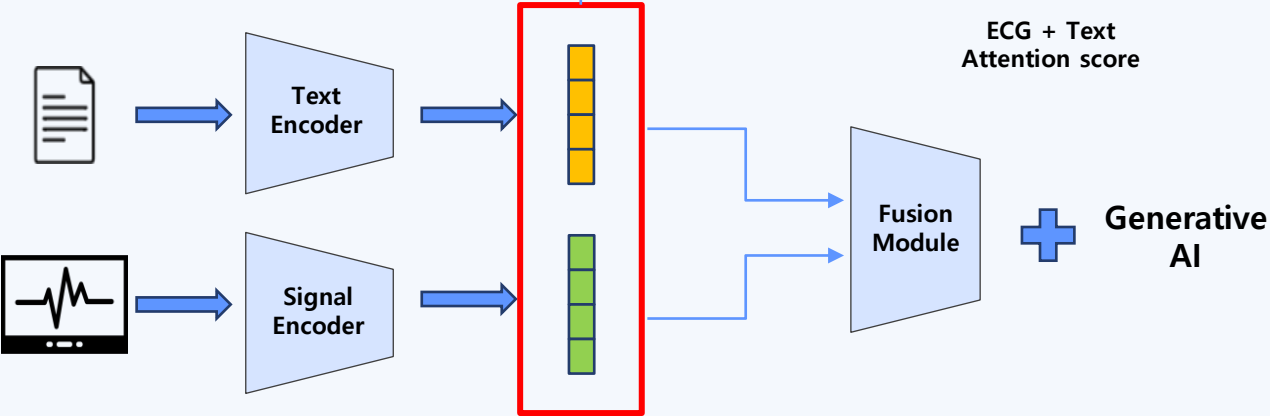
Text + Signal 에 대한 MultiModal 학습

```
<Diagnosis>  
<Statement>SINUS BRADYCARDIA</Statement>  
<Comment>V-rate<math>\leq</math> 60</Comment>  
</Diagnosis>  
<Diagnosis>  
<Statement>FIRST DEGREE AV BLOCK</Statement>  
<Comment>PR <math>></math>210, V-rate 50- 90</Comment>  
</Diagnosis>
```

Diagnosis (Text)



**Data Source**  
10s Rhythm  
12 Leads  
250만 ECGs  
  
Samsung  
Medical Center



## ECG 자동 판독 생성 실제결과 예시

실제 기계 판독 VS 알고리즘에 의한 판독 생성 결과

sinus rhythm and st elev, probable normal early repol pattern  
and normal p axis, v - rate 60 - 99 and st elevation,

sinus rhythm and elev, probable normal early repol pattern  
and normal p axis, v - 60 - 99 and elevation,

Cosine similarity : 0.84

sinus rhythm and probable left atrial abnormality and lvh with  
secondary repolarization abnormality and probable inferior infarct,  
and prolonged qt interval and baseline wander in lead ( s ) v3 and  
normal p axis, v - rate 50 - 99 and p > 50ms, < - 0.10mv vI and r56I  
/ risiii / sI2r56 / s3rI & rep abn and q > 35ms, t neg, ii iii avf and qtc >  
500ms

sinus rhythm probable atrial abnormality and lvh with  
secondary repolarization abnormality and probable inferior infarct,  
and qt interval and baseline wander in lead ( s ) v3 normal p axis,  
v - rate - 99 p > 50ms, < - 0.10mv vI and / risiii / sI2r56 / & rep  
and q > 35ms, t neg, ii iii avf and qtc > 500ms

Cosine similarity : 0.94