

An Introduction to the Event-Related-Potential

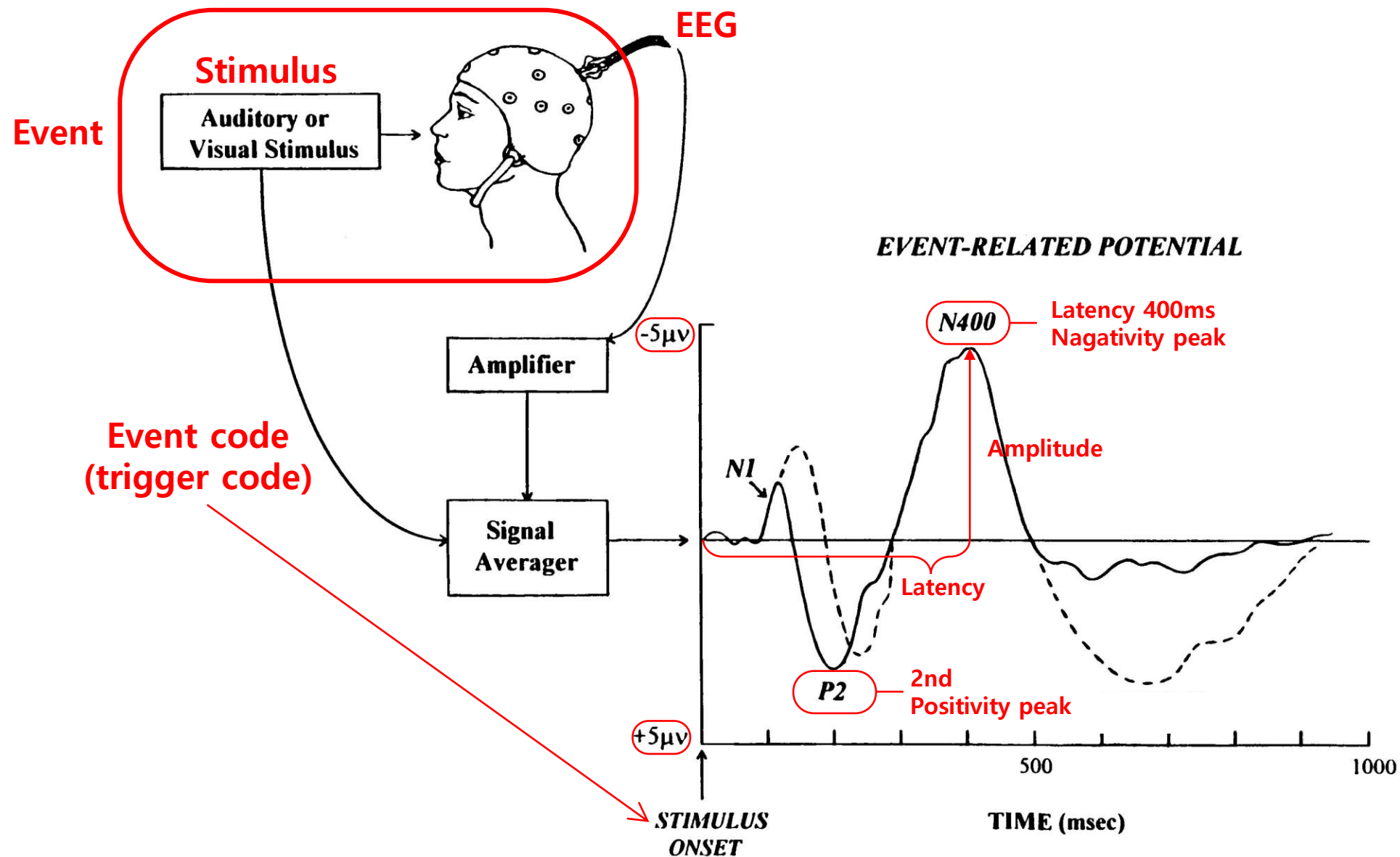
- **Ch1. A Broad Overview of the Event-Related Potential Technique**
- **Ch2. A Closer Look at ERPs and ERP Components**

일시 : 2022년 02월 07일 월요일

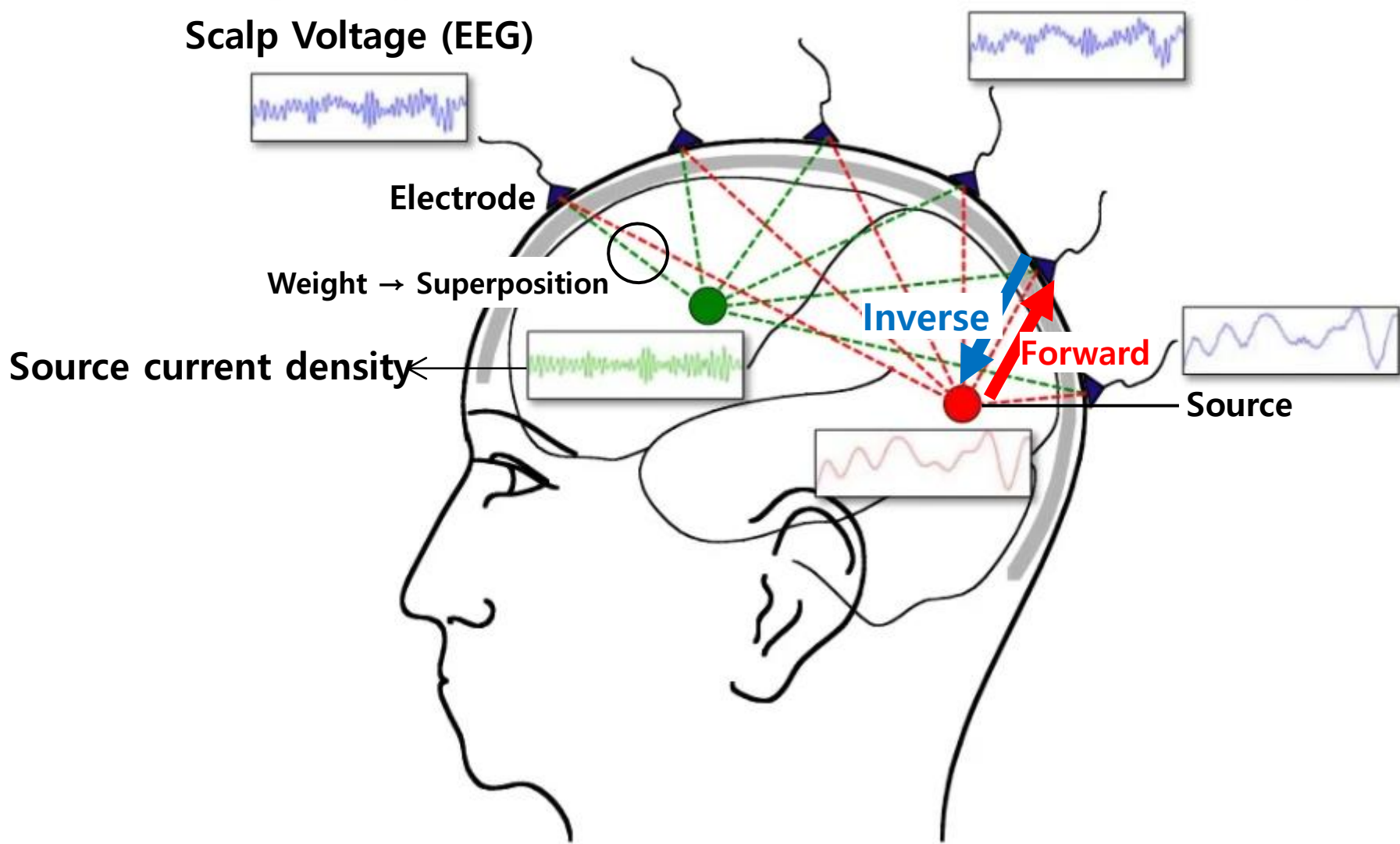
발표자 : 2017272043 이성진

ERP(Event-Related-Potential)

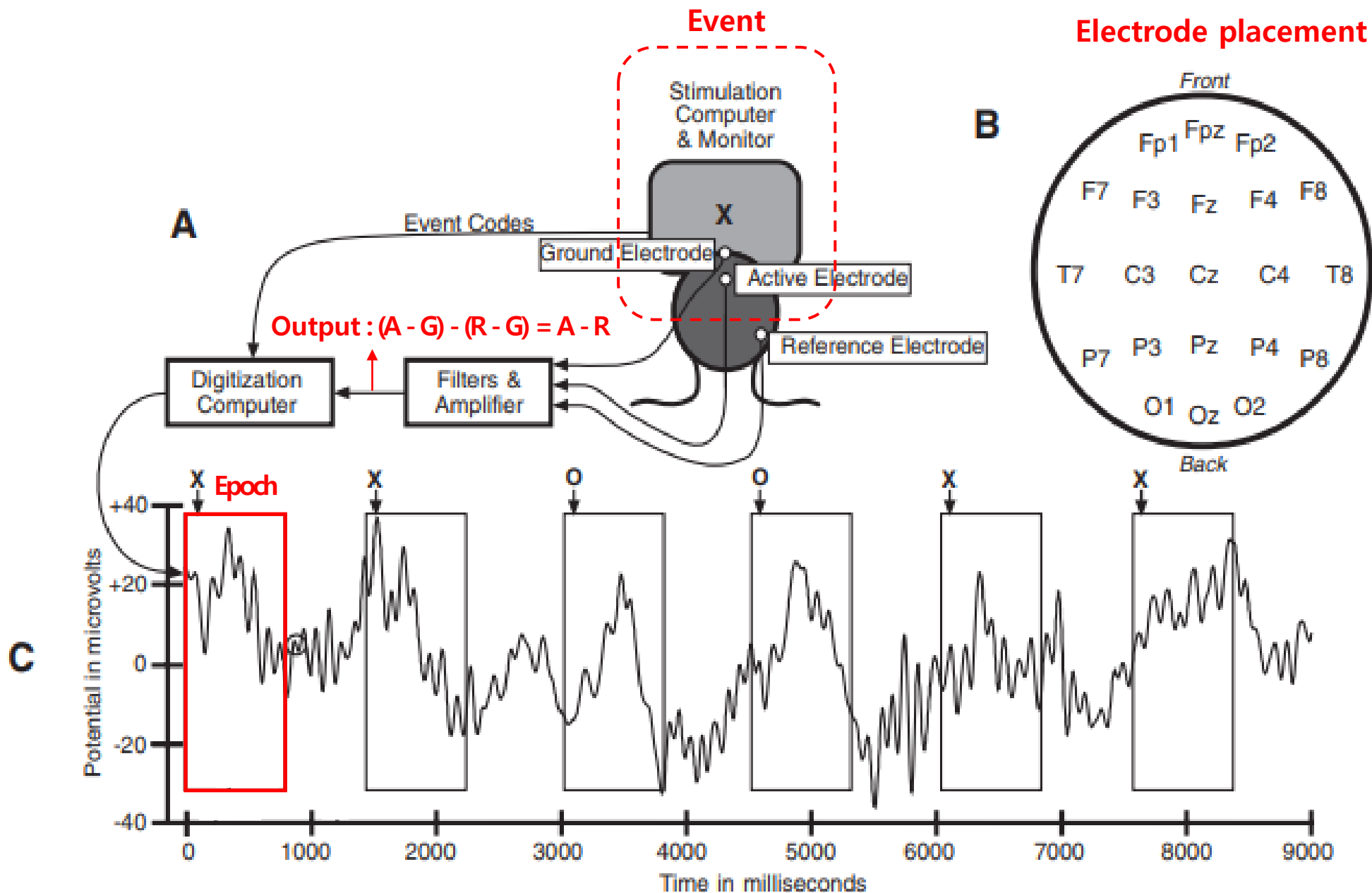
<Basic ERP Recording Process>



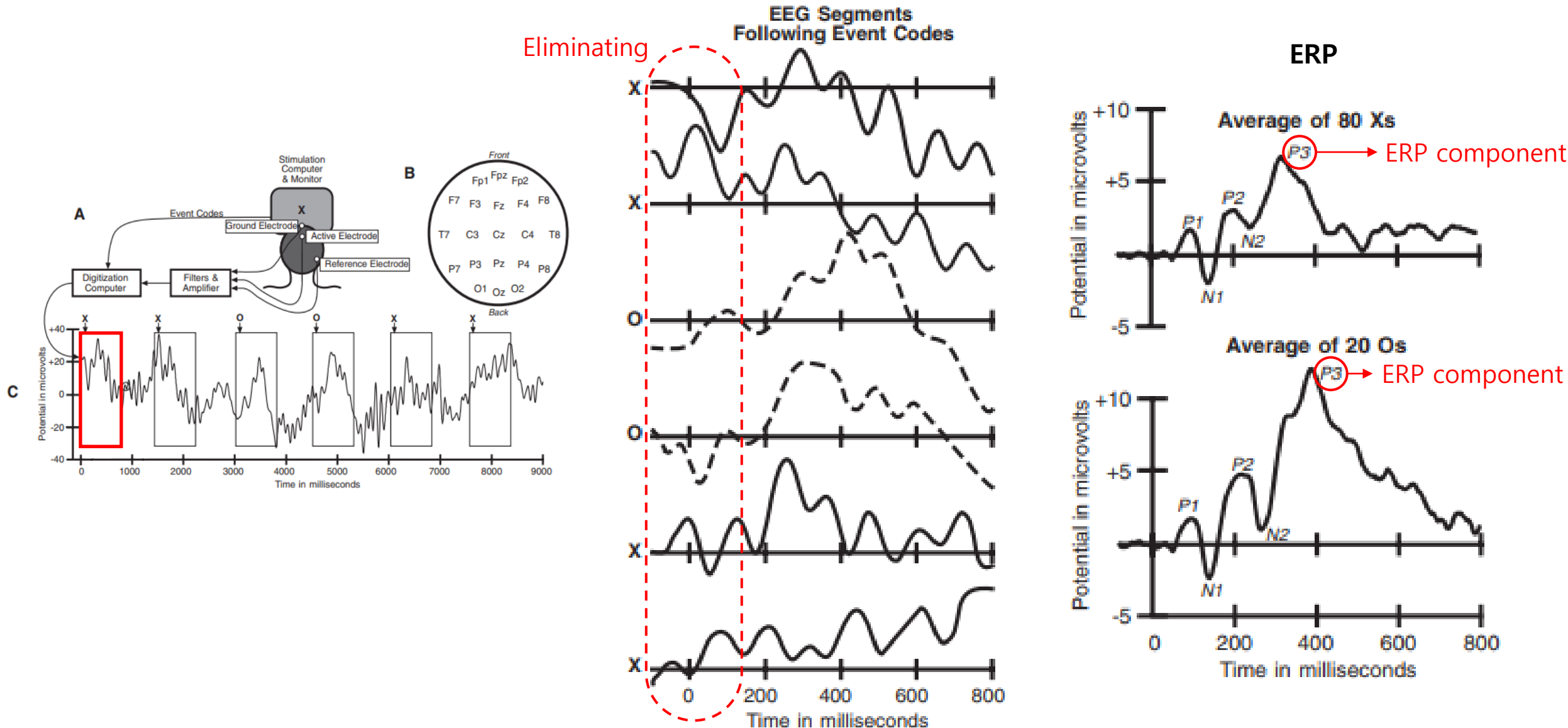
ERP generation



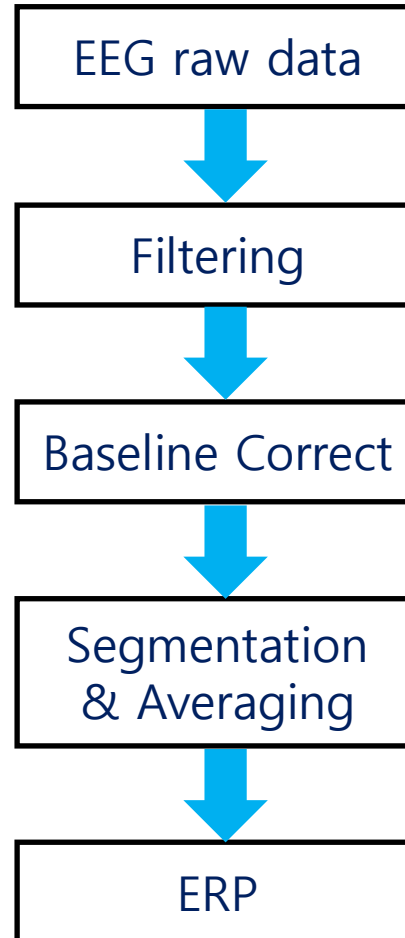
ERP 실험 예시 (visual oddball task)



ERP 실험 예시 (visual oddball task)



Procedure of ERP acquisition

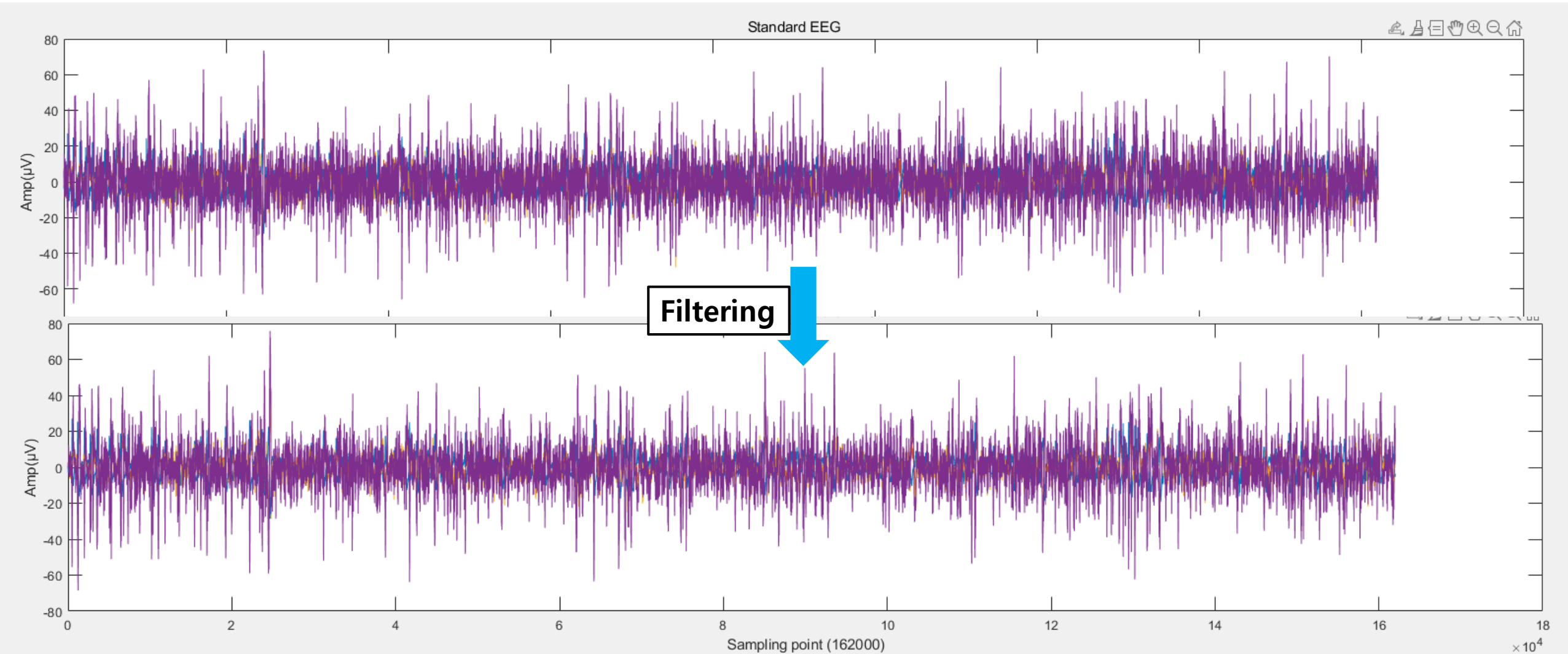


Experiment information

- Sampling frequency : 500Hz
- Channel : 4 channel
- Standard : 216 trials
- Target : 54 trials
(1 trial : 750 point)
- Data form : channel x time point x trial number
- Segmented epoch : -0.5s ~ 1.0s

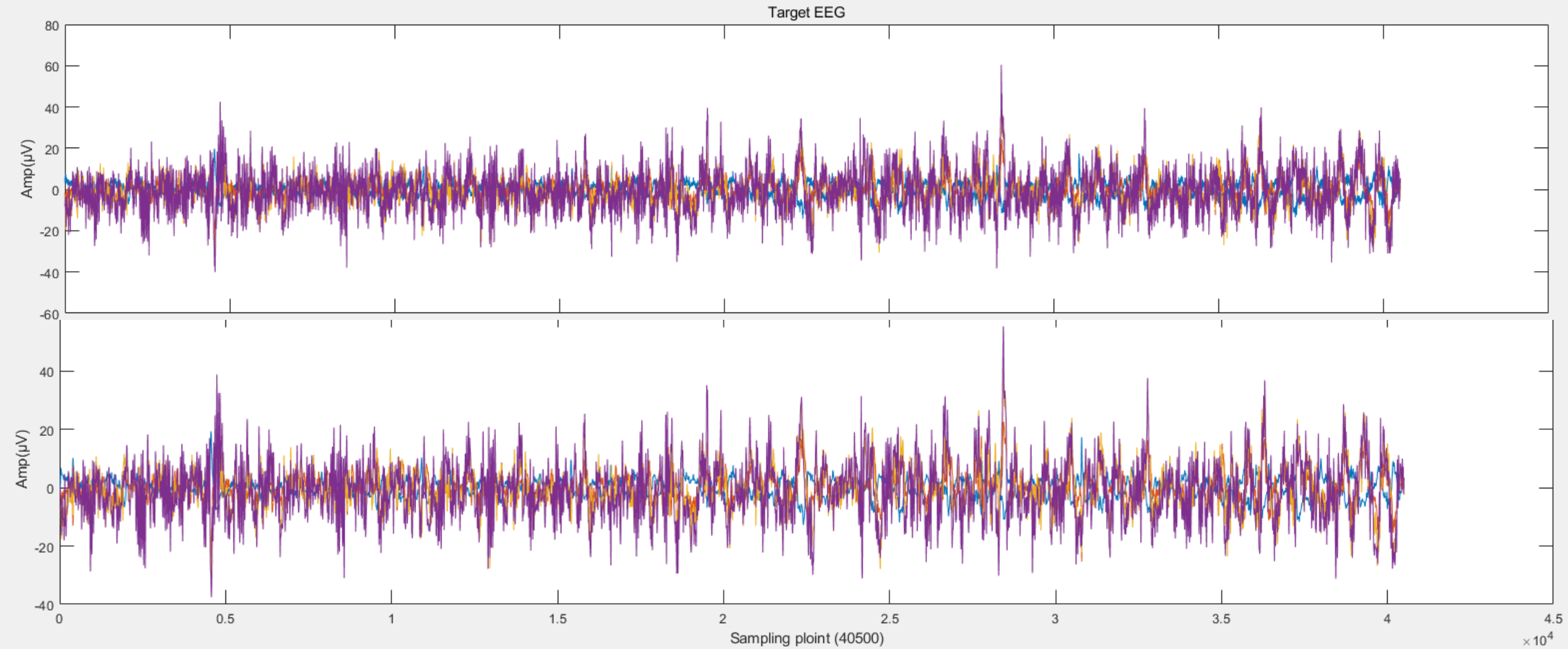
Filtering : Standard EEG

Low-pass filter, order = 10, cutoff frequency = 20Hz



Filtering : Target EEG

Low-pass filter, order = 10, cutoff frequency = 20Hz



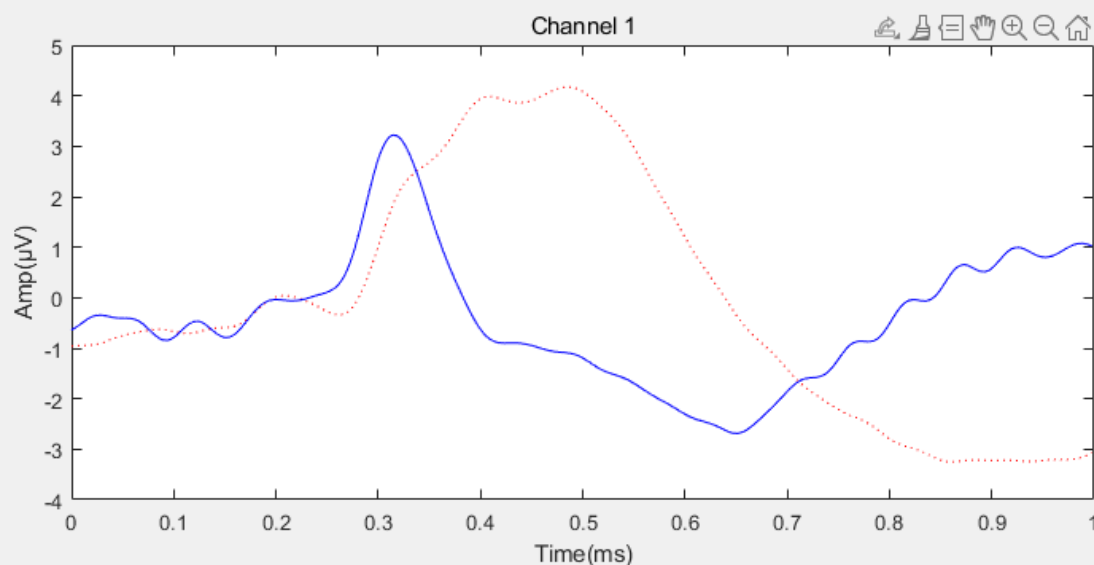
Baseline correction 전/후 비교

0ms ~ 100ms를 평균화한 후 빼주었다

전/후 차이를 직관적으로 보기 위해 최종 ERP waveform으로 비교함

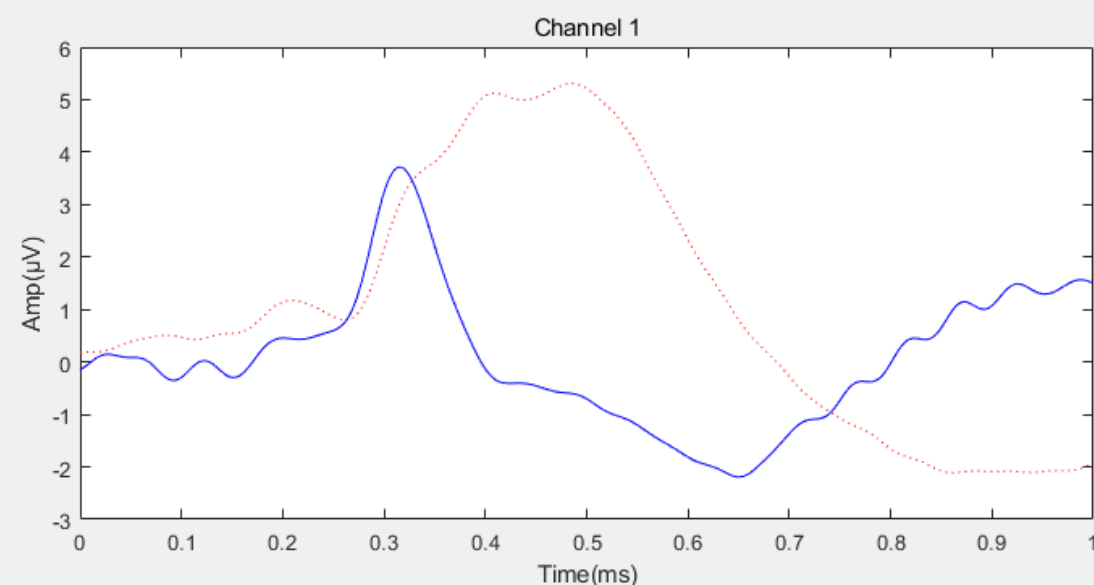
Baseline correction을 한 ERP의 시작점이 원점에 더 가깝게 이동한 것을 볼 수 있음

Baseline correction 전 (Channel 1)

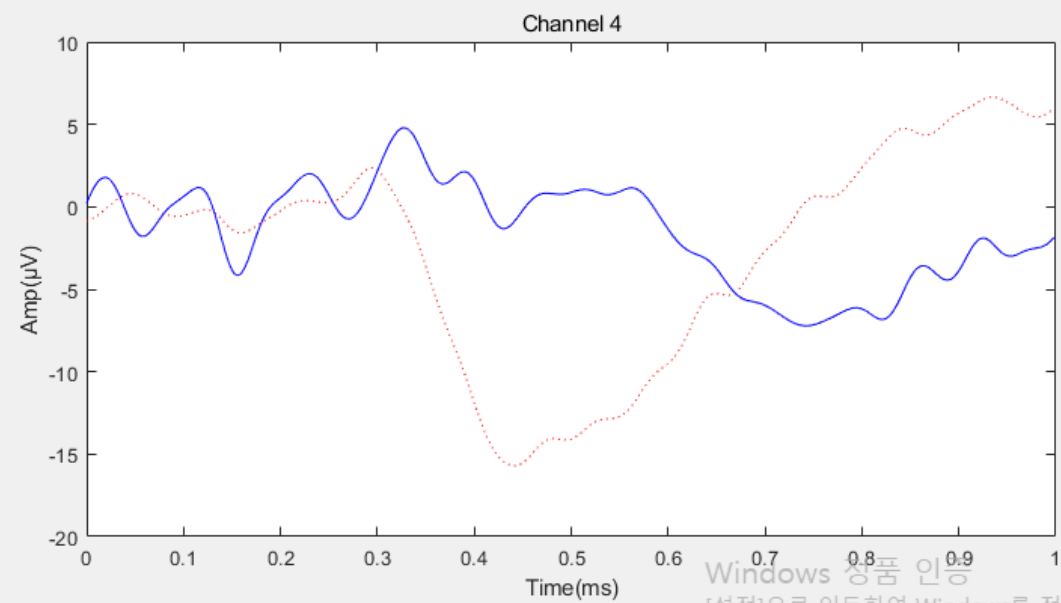
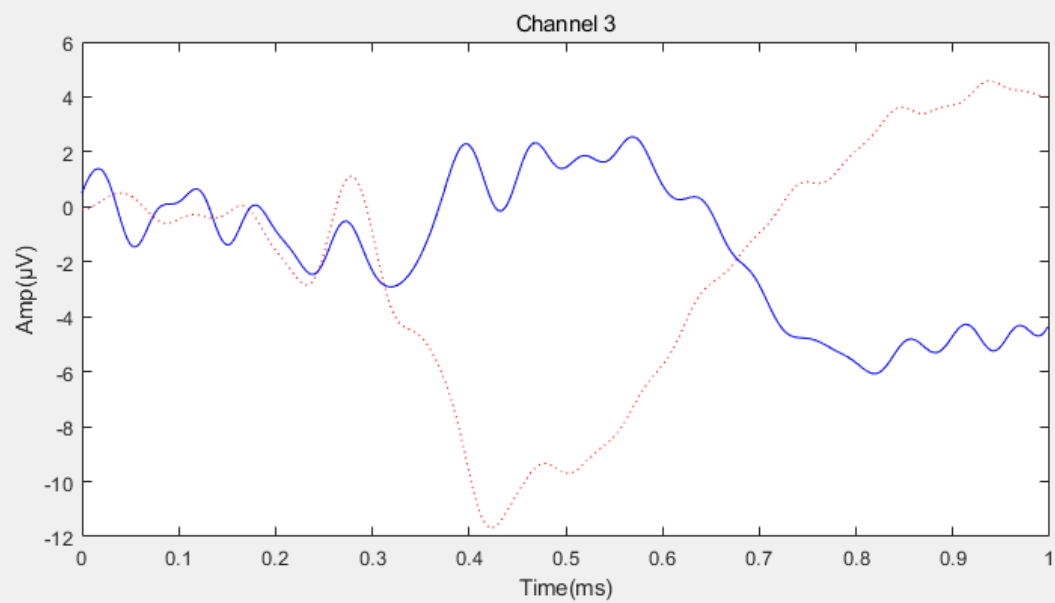
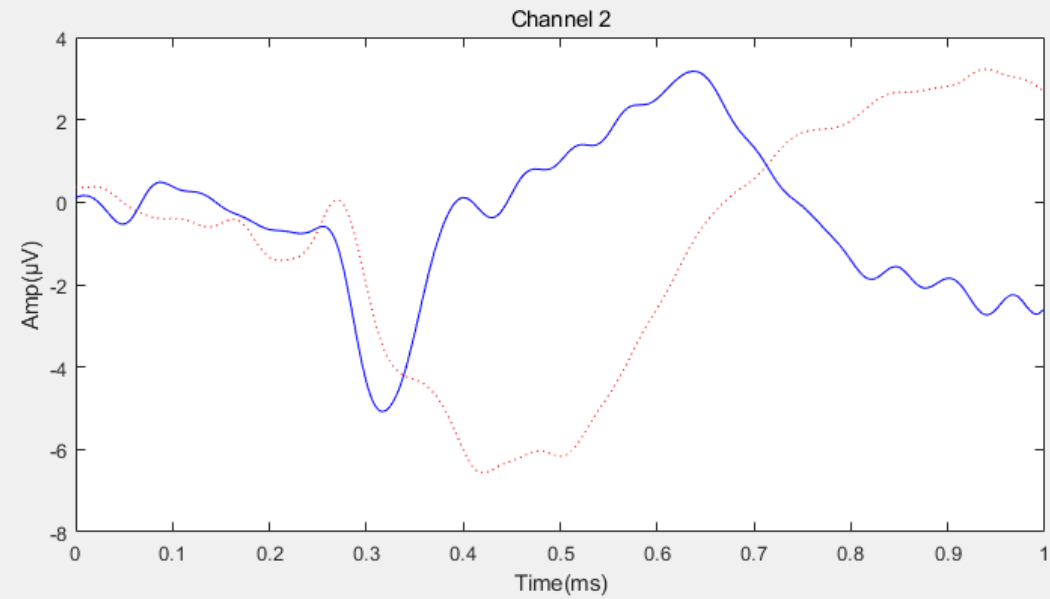
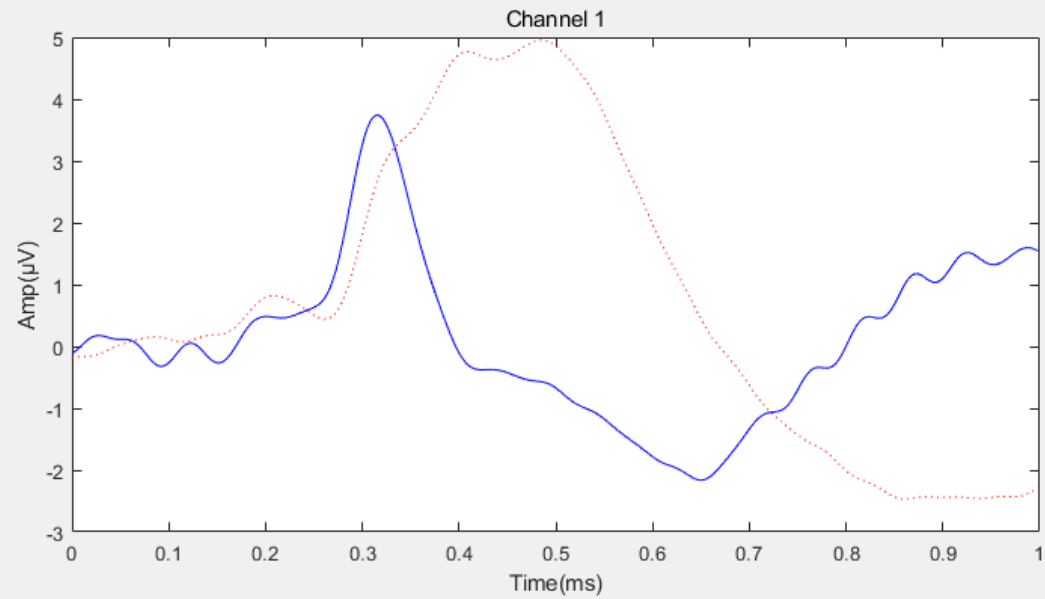


----- Standard ERP
———— Target ERP

Baseline correction 후 (Channel 1)



최종 ERP 파형



보완해야할 점

1. Artifact removal를 건너뛰고 진행한 점 → Artifact removal 추가 공부 후 code화 진행해야 함
2. Data를 2차원 form으로 하고 코딩을 해서 직관적으로 이해하기 힘들었음
→ Data form이 channel x time point x trial number이기 때문에 3차원 form으로 reshape해서 처리할 수 있음
3. ERP를 생성할 때 사용하는 주요 기법에 대한 내용이 ERP책 ch.8, 9, 10에 있기 때문에 빠르게 공부해야 함