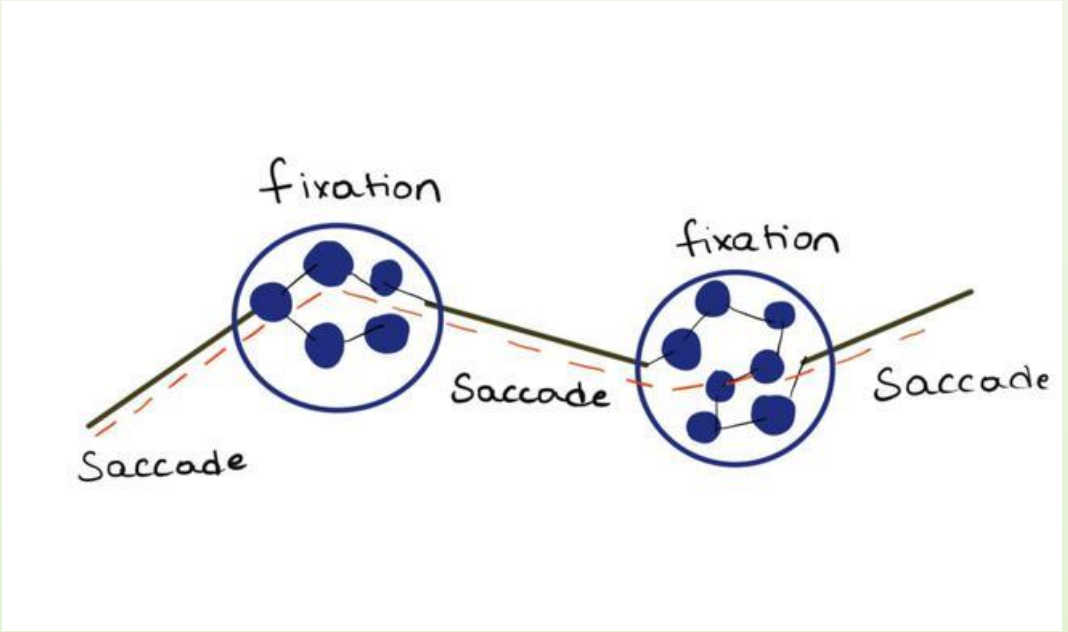
Fixation Filters

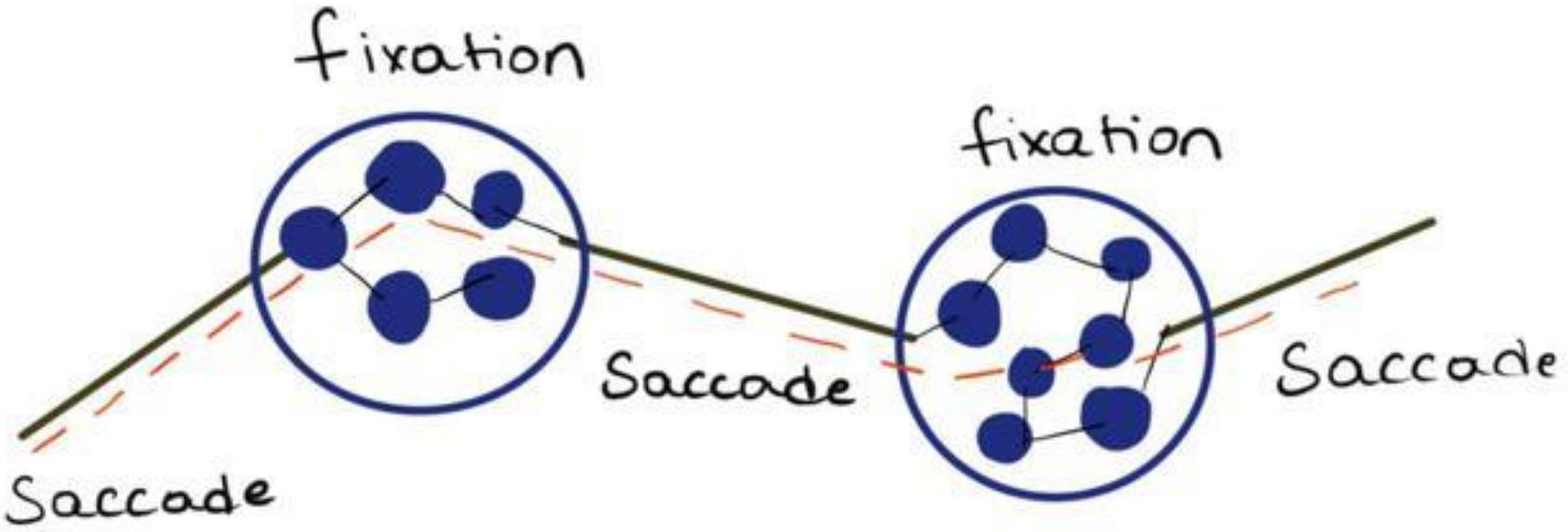
Ali Golbazi Mahdipour

IUST: Neuromarketing (Eye-Tracking and EEG) Researcher

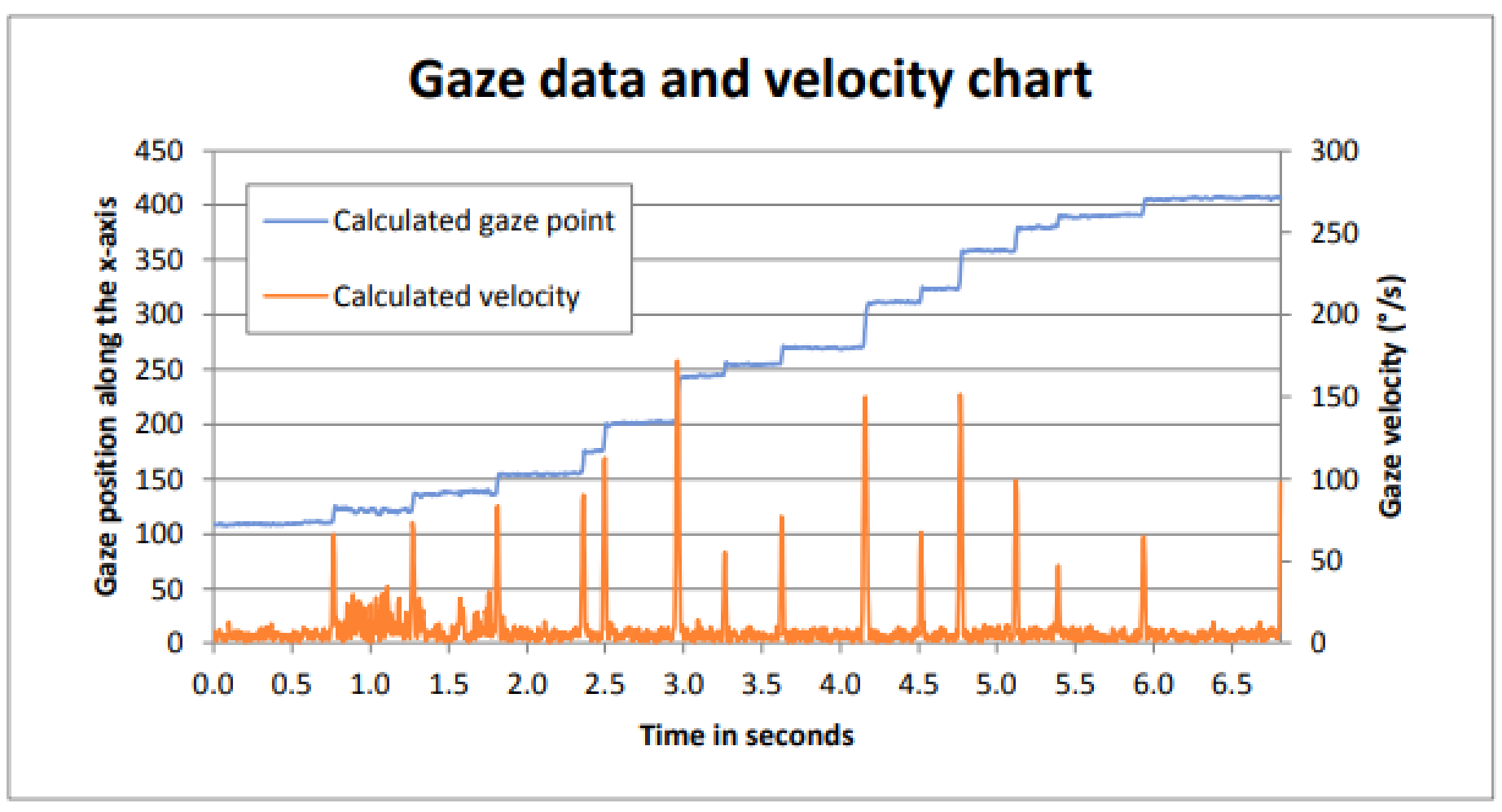
Bank Mellat: Neuromarketing and Eye-Tracking Specialist and Consultant

DAJ Scientific Group: Neuromarketing and Eye-Tracking Specialist and Consultant

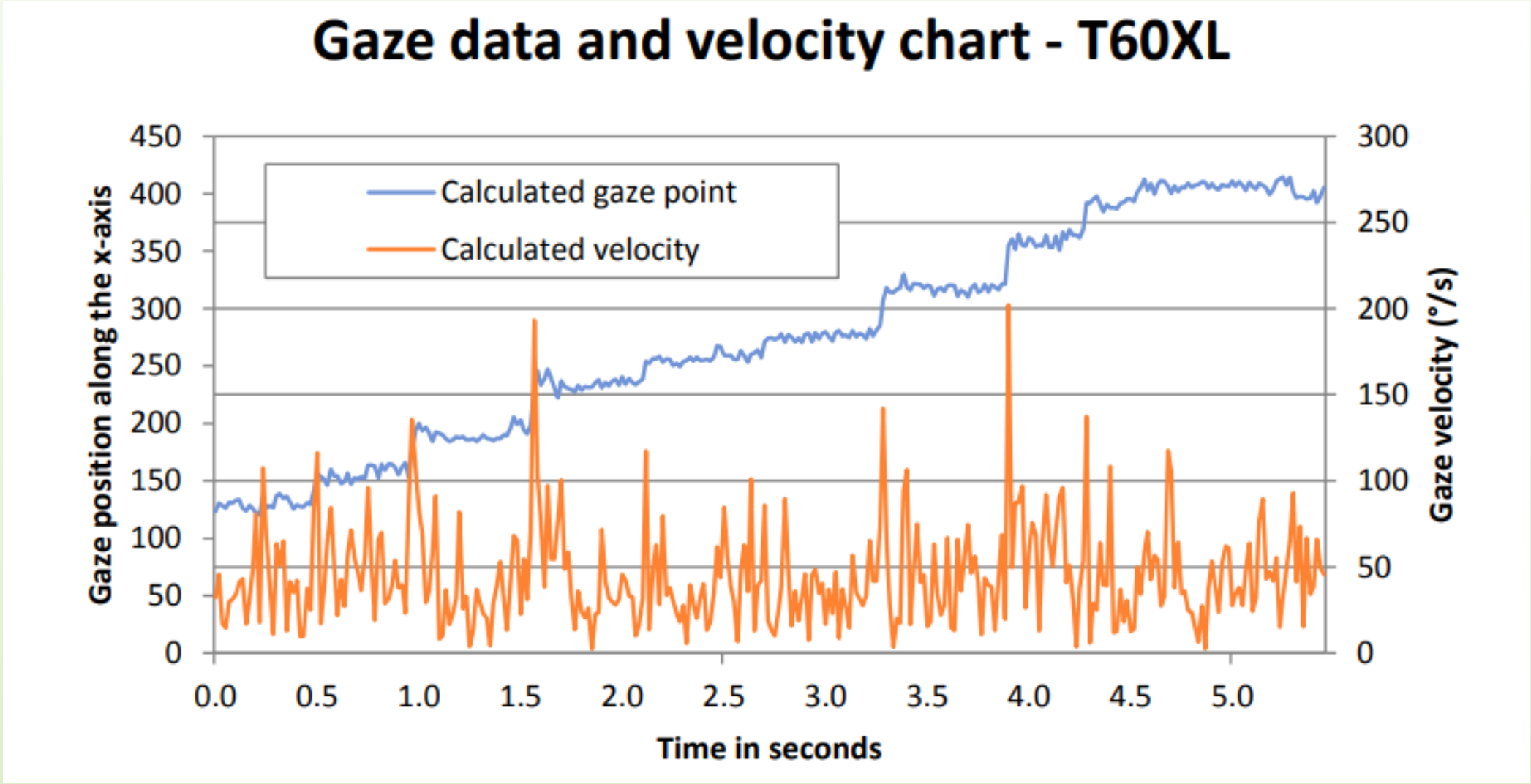



fixation
fixation
Saccade
Saccade
Saccade

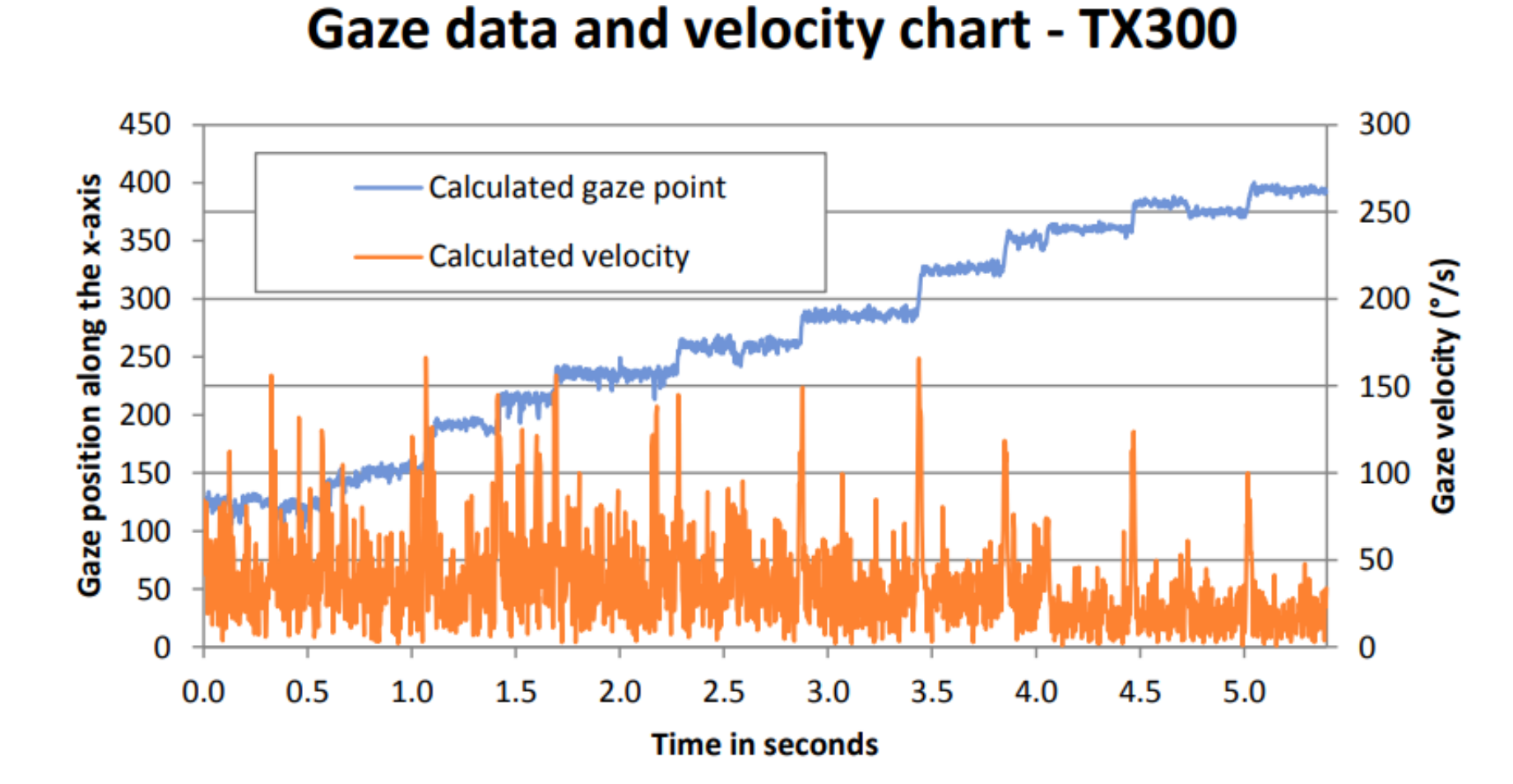
Velocity-Threshold Identification (I-VT)

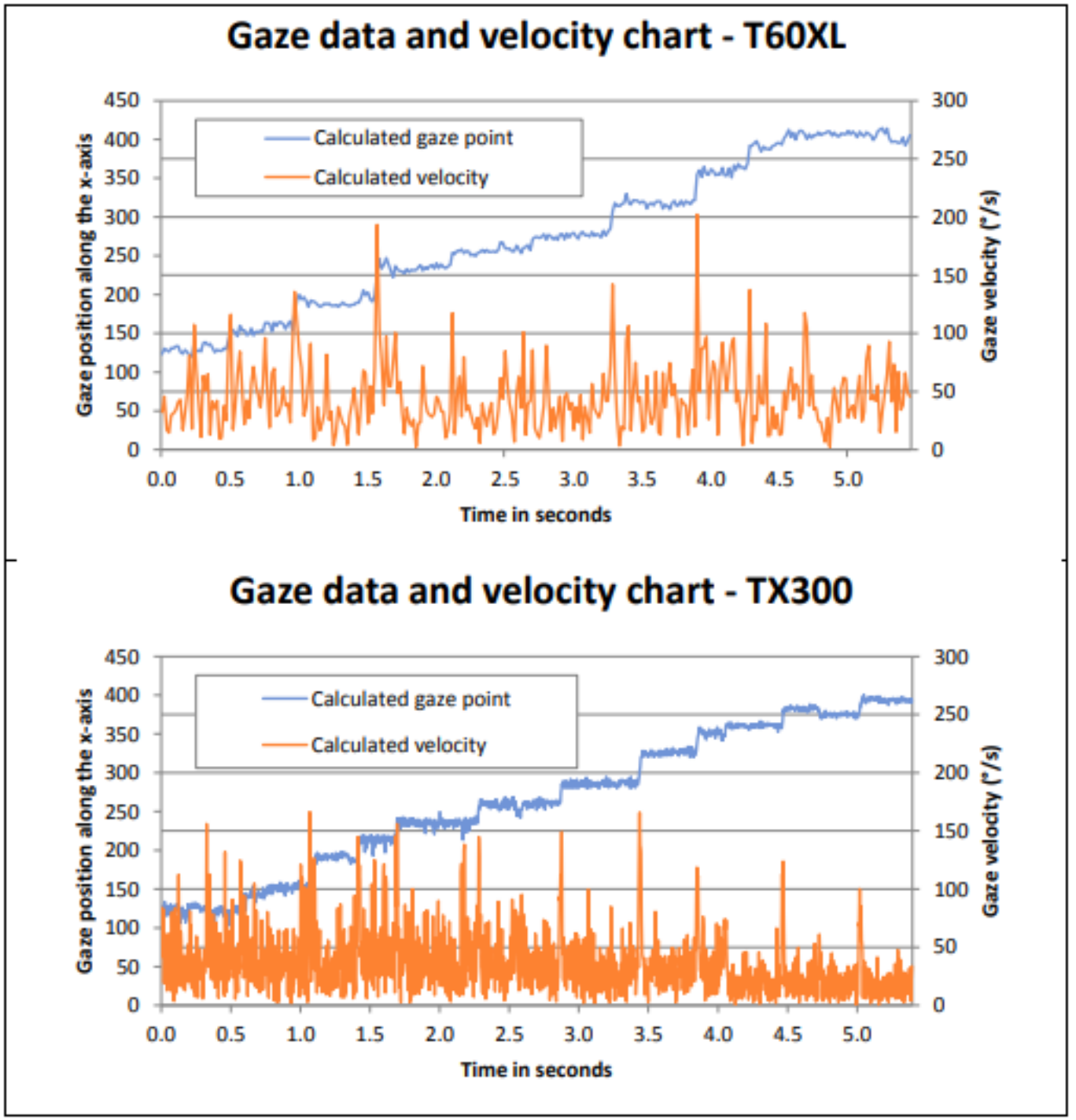


Noise

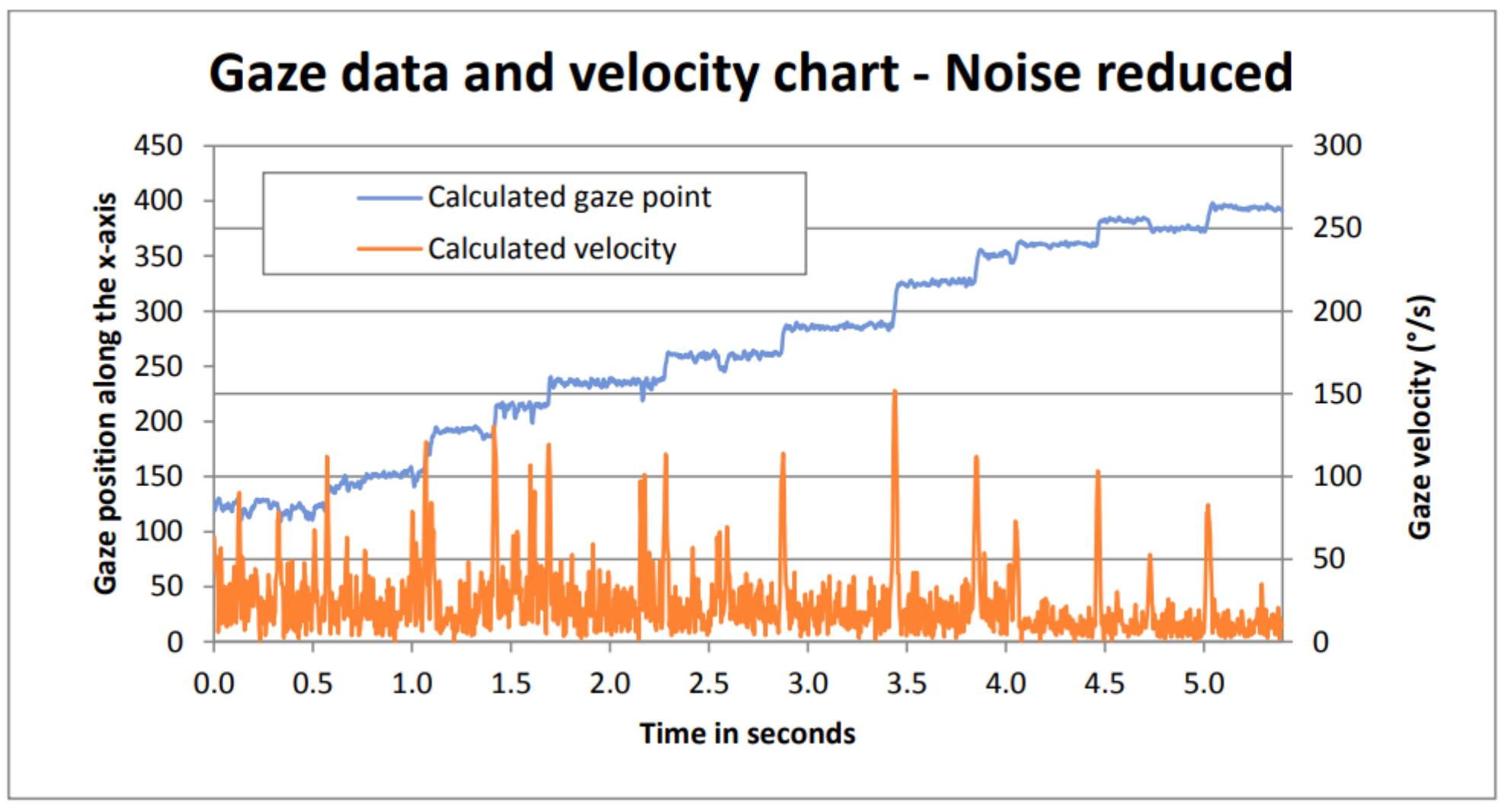

Gaze data and velocity chart - T60XL
Calculated gaze point
Calculated velocity
Gaze position along the x-axis
Gaze velocity (°/s)
Time in seconds
450
400
350
300
250
200
150
100
50
0
300
250
200
150
100
50
0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0

Noise

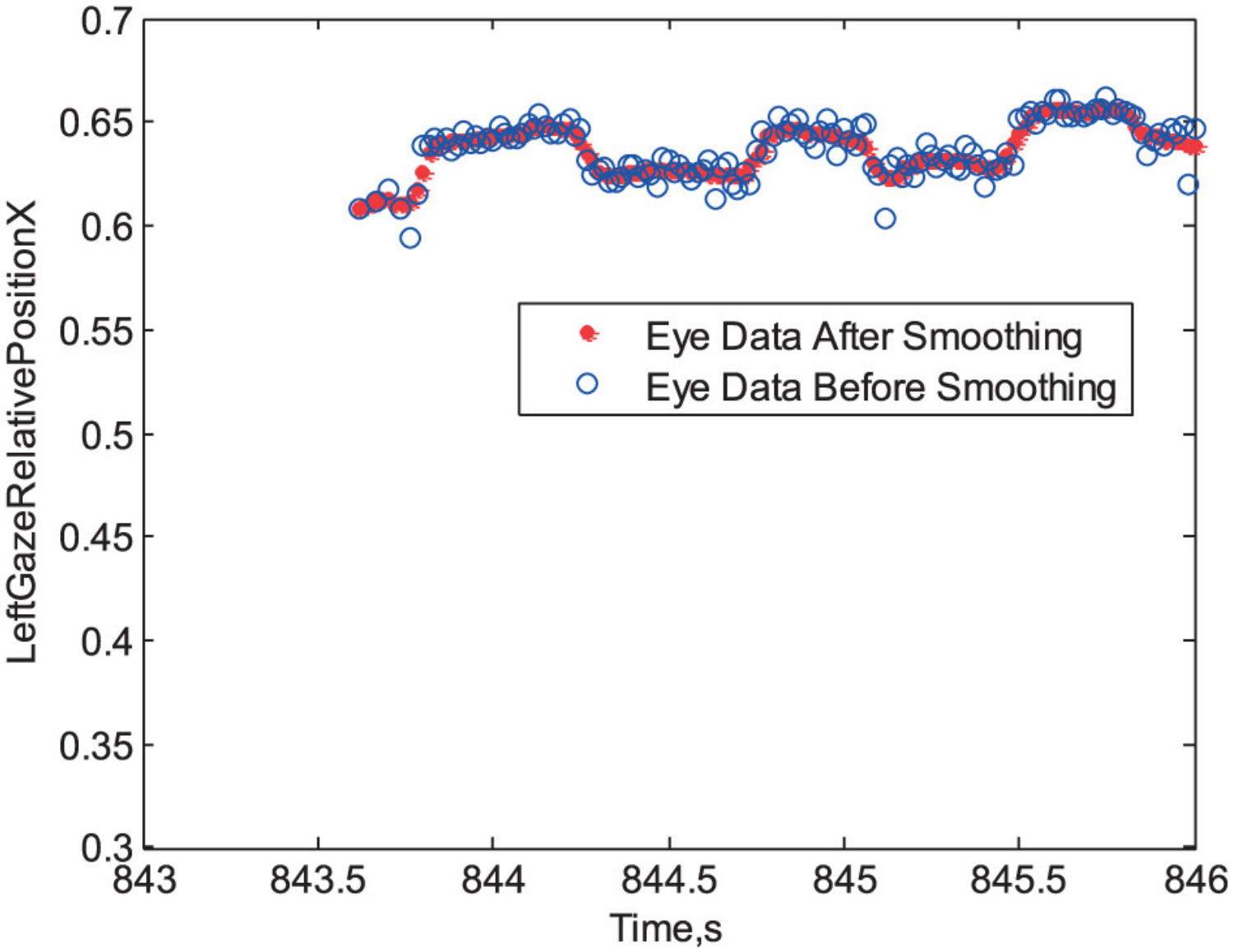

Gaze data and velocity chart - TX300
Calculated gaze point
Calculated velocity
Gaze position along the x-axis
Gaze velocity (°/s)
Time in seconds
450
400
350
300
250
200
150
100
50
0
300
250
200
150
100
50
0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0


Gaze data and velocity chart - T60XL
Calculated gaze point
Calculated velocity
Gaze position along the x-axis
Gaze velocity (°/s)
Time in seconds
0
50
100
150
200
250
300
350
400
450
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Gaze data and velocity chart - TX300
Calculated gaze point
Calculated velocity
Gaze position along the x-axis
Gaze velocity (°/s)
Time in seconds

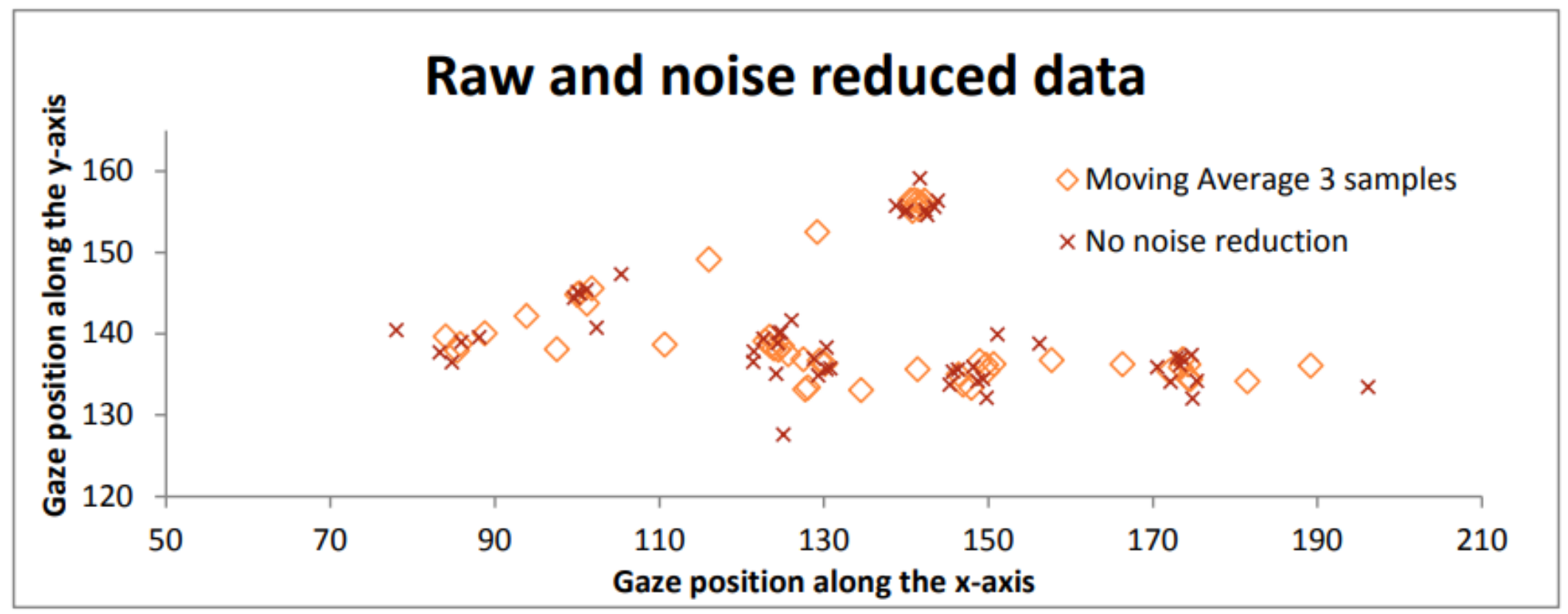
Noise


Gaze data and velocity chart - Noise reduced
Calculated gaze point
Calculated velocity
Gaze position along the x-axis
Gaze velocity (°/s)
Time in seconds
450
400
350
300
250
200
150
100
50
0
300
250
200
150
100
50
0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0

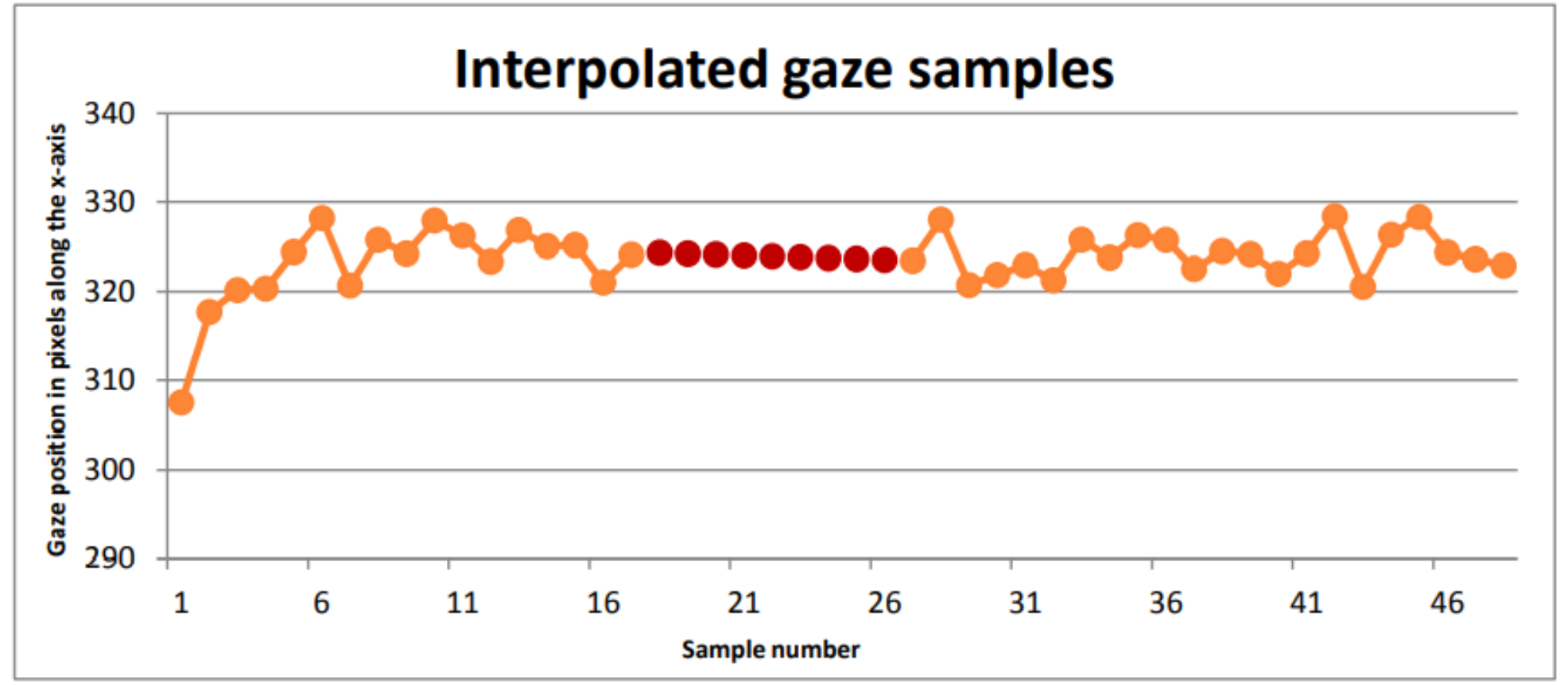
Noise – Moving Average



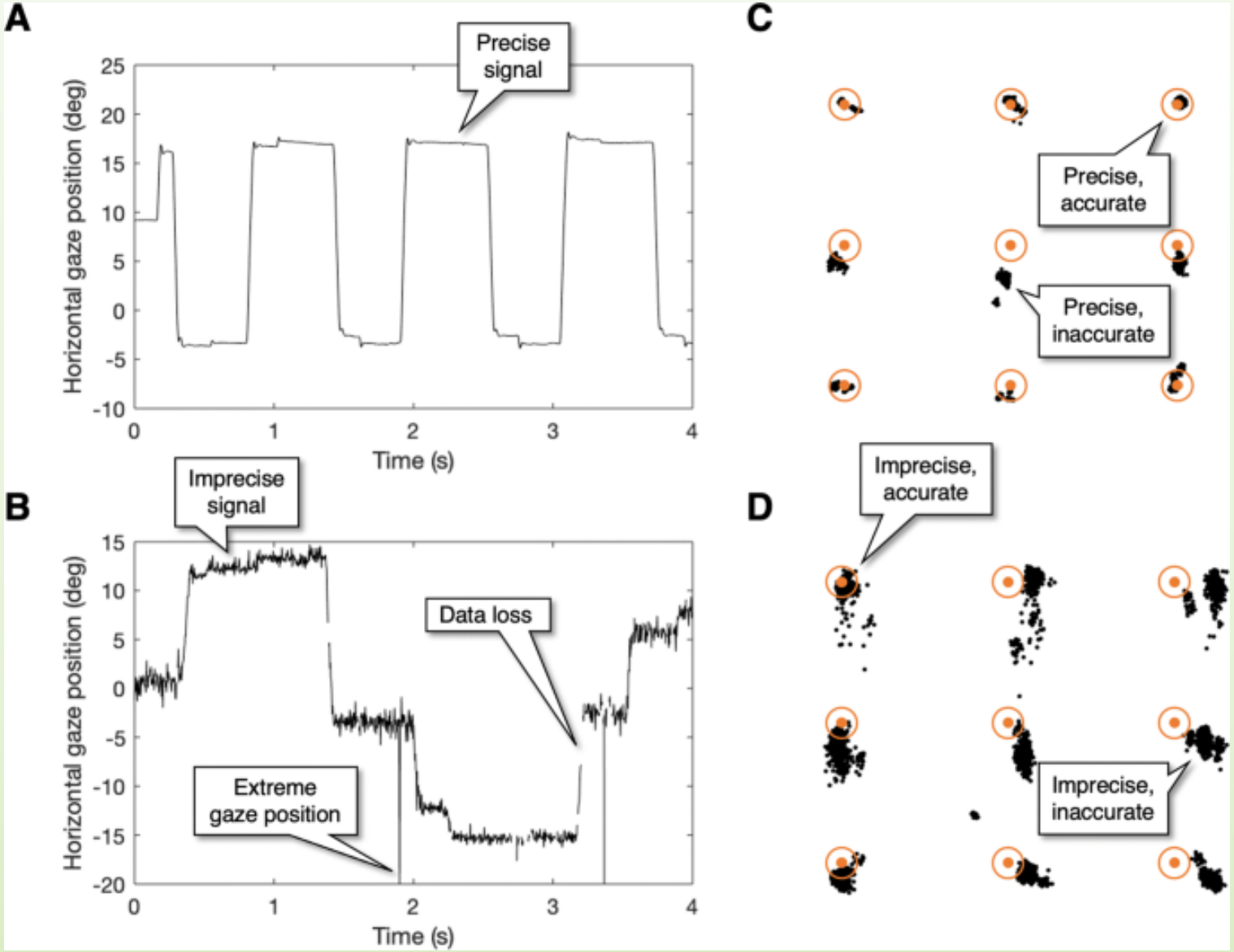
Noise – Moving Average



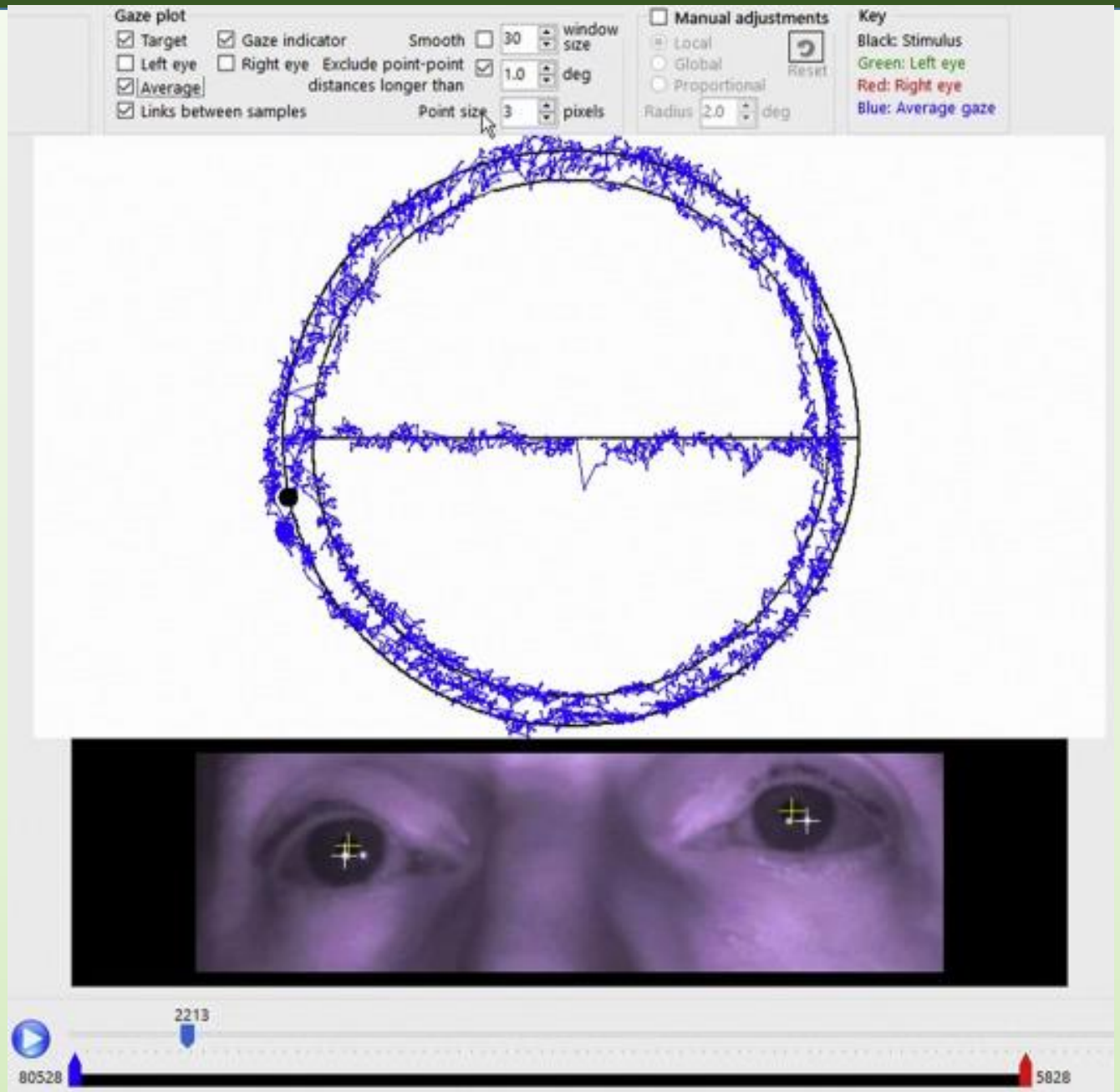
Gap fill in

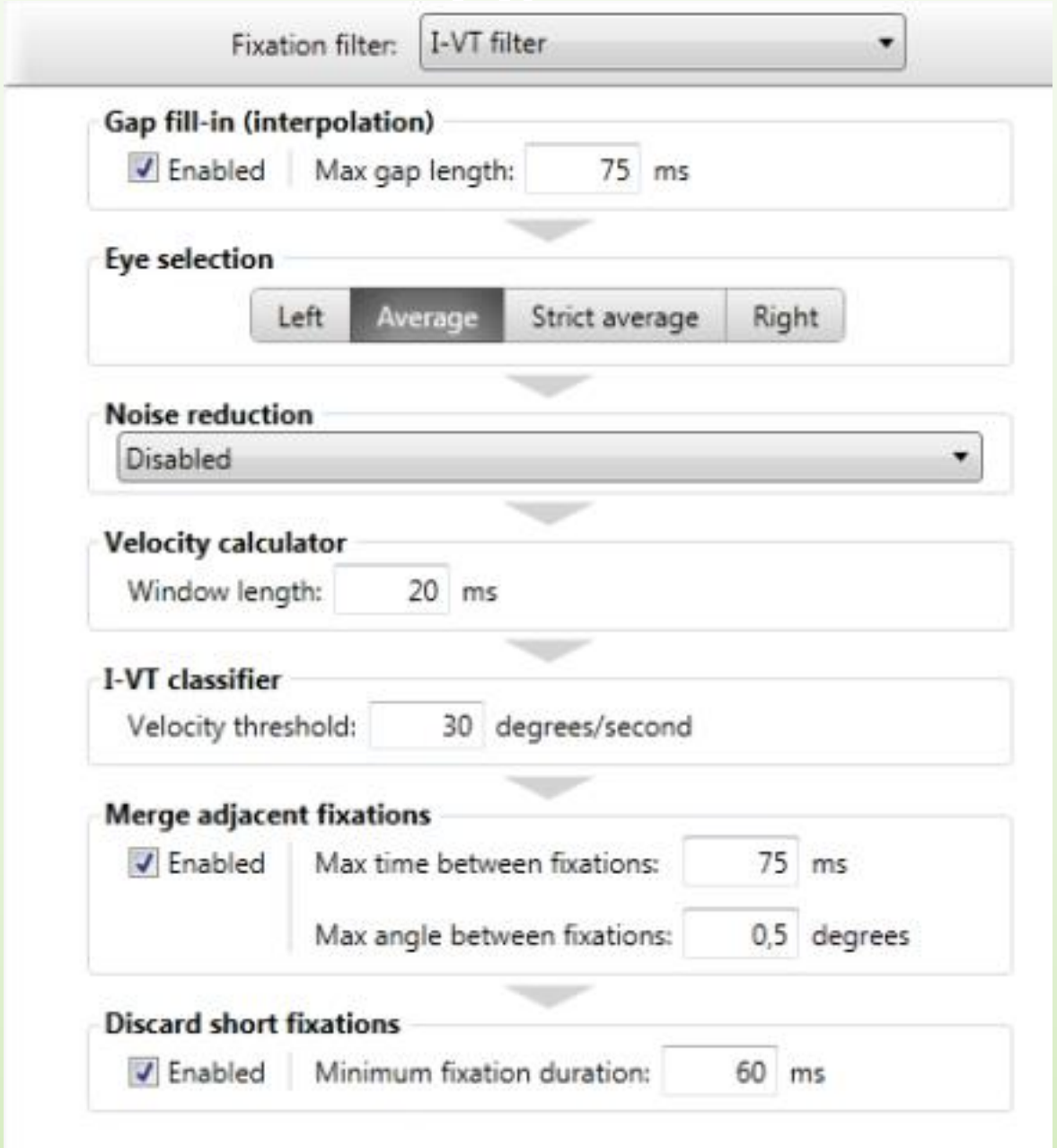

Interpolated gaze samples
Gaze position in pixels along the x-axis
340
330
320
310
300
290
1
6
11
16
21
26
31
36
41
46
Sample number

Gap fill in


A
Precise signal
Horizontal gaze position (deg)
Time (s)
B
Imprecise signal
Data loss
Extreme gaze position
Horizontal gaze position (deg)
Time (s)
C
Precise, accurate
Precise, inaccurate
D
Imprecise, accurate
Imprecise, inaccurate

Eye selection



Ali G. Mahdipour

implementation of the Tobii I-VT