

Supplementary Figures and Tables

PupilMetrics: a Support System for Efficient Preprocessing of Pupillometric Data and Robust Extraction of Outcome Measures

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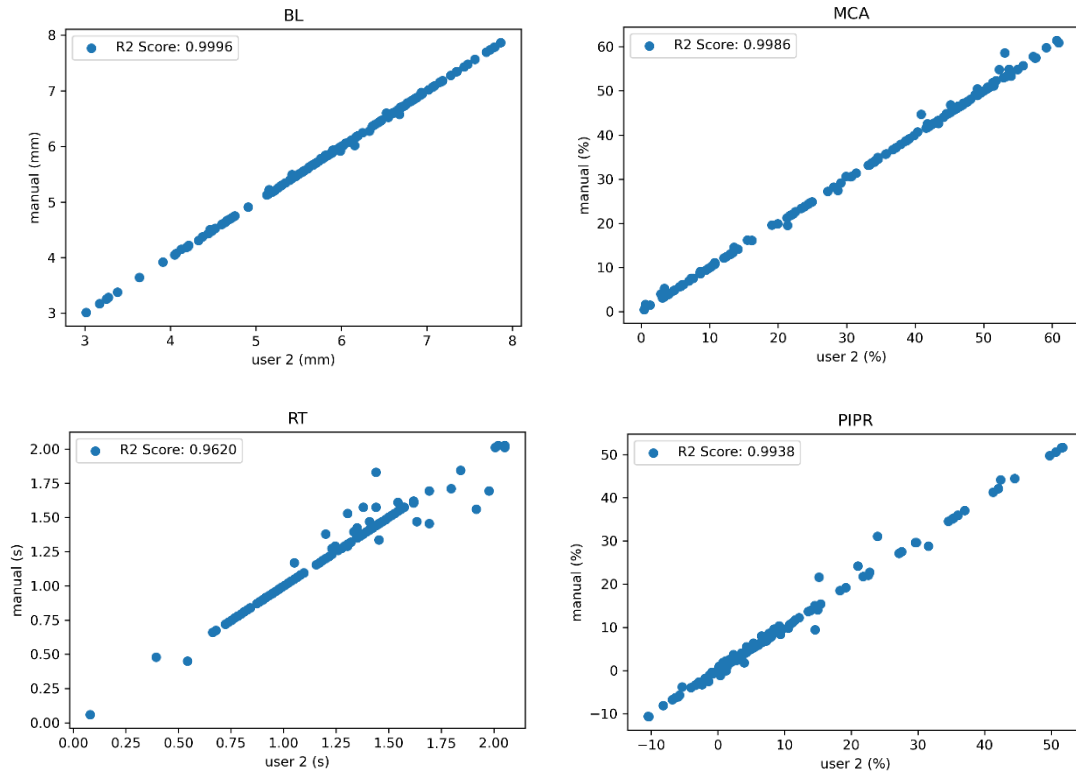


Figure S1. Correlation graphs for each outcome measures obtained automatically with PupilMetrics (user 2) vs manually. High agreement between PupilMetrics (user 1) and manually calculated outcome measures calculated across the whole input dataset, across stimuli. BL: $R^2=0.9996$, $p=10^{-620}$, Beta=0.9989. MCA: $R^2=0.9986$, $p=10^{-516}$, Beta=1.0034. RT: $R^2=0.962$, $p=10^{-259}$, Beta=0.9683. PIPR: $R^2=0.938$, $p=10^{-399}$, Beta=1.0043.

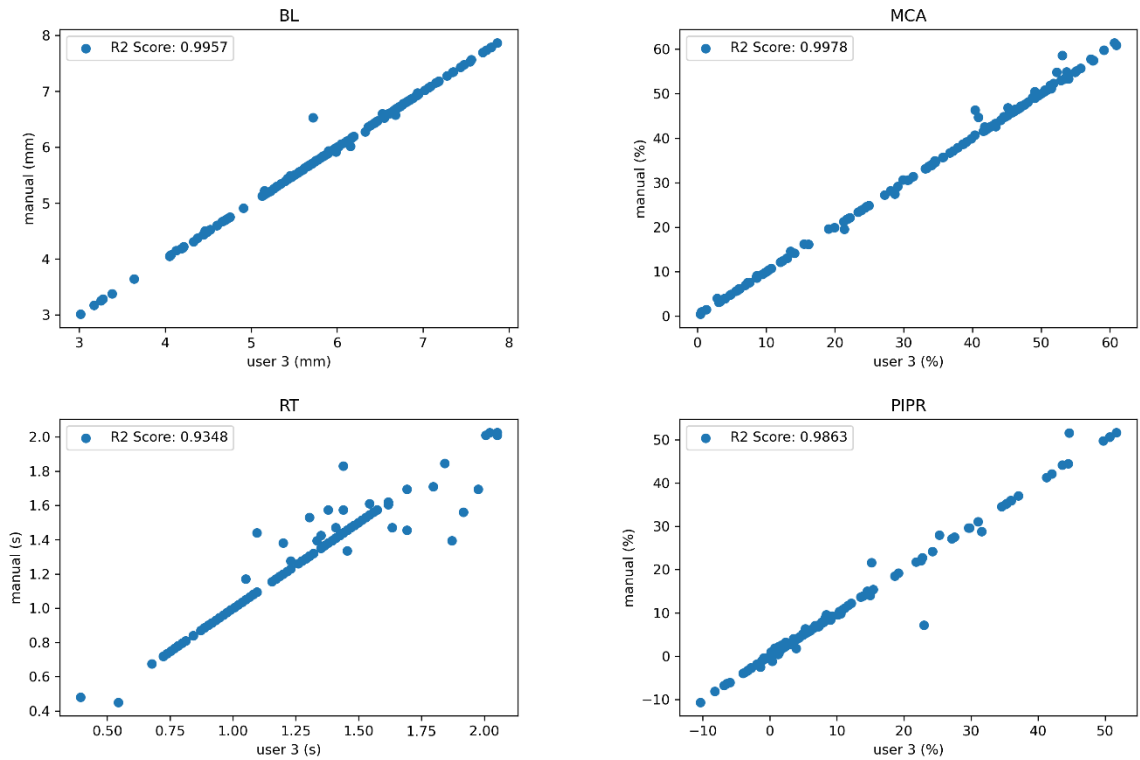


Figure S2. Correlation graphs for each outcome measures obtained automatically with PupilMetrics (user 3) vs manually. High agreement between PupilMetrics (user 1) and manually calculated outcome measures calculated across the whole input dataset, across stimuli. BL: $R^2=0.9957$, $p=10^{-411}$, Beta=0.9981. MCA: $R^2=0.9978$, $p=10^{-465}$, Beta=1.0062. RT: $R^2=0.9348$, $p=10^{-209}$, Beta=0.9398. PIPR: $R^2=0.9863$, $p=10^{-325}$, Beta=1.0018.

Table S1. *Correlation between manual and user 2-derived outcome measures across the whole dataset, for each stimulus and for all grouped stimuli.*

	Stimuli	BL	MCA	RT	PIPR
type	(log cd/m ²)	(R ²)	(R ²)	(R ²)	(R ²)
Blue	-4.5	0.9997	0.9959	0.984	0.9841
Blue	-2.5	0.9999	0.9993	0.9651	0.9939
Blue	-1.0	0.9995	0.9975	0.8443	0.9903
Blue	1.5	0.9999	0.9838	0.6522	0.9603
Blue	2.23	0.9994	0.952	0.8472	0.9936
Red	-2.5	0.9999	0.9921	0.9988	0.942
Red	-1.0	0.9991	0.9957	1	0.9734
Red	0.5	0.9998	0.9696	0.85	0.9848
Red	1.5	0.9997	0.9956	0.9521	0.94
All stimuli grouped		0.9996	0.9986	0.962	0.9938

Table S2. *Correlation between manual and user 3-derived outcome measures across the whole dataset, for each stimulus and for all grouped stimuli.*

Stimuli	BL	MCA	RT	PIPR
type (log cd/m ²)	(R ²)	(R ²)	(R ²)	(R ²)
Blue -4.5	0.9997	0.9959	0.984	0.9841
Blue -2.5	0.9999	0.999	0.9615	0.9933
Blue -1.0	0.9995	0.9975	0.8443	0.9951
Blue 1.5	0.9999	0.9848	0.4766	0.9949
Blue 2.23	0.9642	0.952	0.8472	0.9676
Red -2.5	0.9999	0.9977	1	0.9945
Red -1.0	0.9991	0.9956	1	0.9773
Red 0.5	0.9999	0.916	0.5055	0.6022
Red 1.5	0.9998	0.9956	0.9511	0.9409
All stimuli grouped	0.9957	0.9978	0.9348	0.9863

Table S3. Average outcome measures (mean, SD, number of values) for each stimulus after PupilMetrics processing by three different users.

Stimuli	BL (mm)	MCA (%)	RT (s)	PIPR (%)
Type (logcd/m ²)	PupilMetrics (three user average)			
Blue -4.5	6.07	9.62	0.93	0.95
	± 1	± 5.88	± 0.25	± 3.12
	n=17	n=17	n=17	n=17
Blue -2.5	5.97	30.05	1.33	3.56
	± 0.94	± 6.42	± 0.22	± 4.05
	n=17	n=17	n=17	n=16
Blue -1.0	5.82	41.21	1.43	6.48
	± 1.16	± 9.66	± 0.39	± 5.94
	n=17	n=17	n=17	n=17
Blue 1.5	5.57	47.92	1.6	22.44
	± 1.05	± 11.12	± 0.60	± 10.75
	n=12	n=13	n=13	n=13
Blue 2.23	5.76	52.68	1.64	39.14
	± 1.07	± 5.8	± 0.64	± 10.32
	n=16	n=16	n=16	n=16
Red -2.5	5.96	6.08	0.87	0.75
	± 1.03	± 5.49	± 0.23	± 4.99
	n=13	n=13	n=13	n=13
Red -1.0	5.76	18.04	1	0.22
	± 1.16	± 6.94	± 0.17	± 4.06
	n=17	n=17	n=17	n=17
Red 0.5	5.92	42.07	1.36	7.21
	± 1.11	± 4.98	± 0.09	± 4.07
	n=19	n=19	n=19	n=19
Red 1.5	5.78	48.34	1.4	6.98
	± 1.05	± 4.71	± 0.08	± 4.67
	n=21	n=21	n=21	n=21

Table S4. *Correlation between manual and average of outcome measures of three users across the whole dataset, for each stimulus and for all grouped stimuli.*

	Stimuli	BL	MCA	RT	PIPR
type	(log cd/m ²)	(R ²)	(R ²)	(R ²)	(R ²)
Blue	-4.5	0.9997	0.9959	0.984	0.9841
Blue	-2.5	0.9999	0.999	0.9615	0.9933
Blue	-1.0	0.9995	0.9975	0.8443	0.993
Blue	1.5	0.9999	0.9953	0.7997	0.9836
Blue	2.23	0.9838	0.952	0.8472	0.9652
Red	-2.5	0.9999	0.9977	1	0.9892
Red	-1.0	0.9991	0.9956	1	0.9764
Red	0.5	0.9999	0.9696	0.85	0.9175
Red	1.5	0.9998	0.9956	0.9511	0.9608
All stimuli grouped		0.9979	0.9986	0.9664	0.9938