Distinguishing Voluntary and Involuntary Blinks Through Eye Openness Metrics

- Konstantinos Roumpas[1]
  Dimosthenis Minas[1]
  Alberto Calvo-Cordoba[2]
  Michalis Xenos[1]

[1]University of Patras
[2]Indra Systemas

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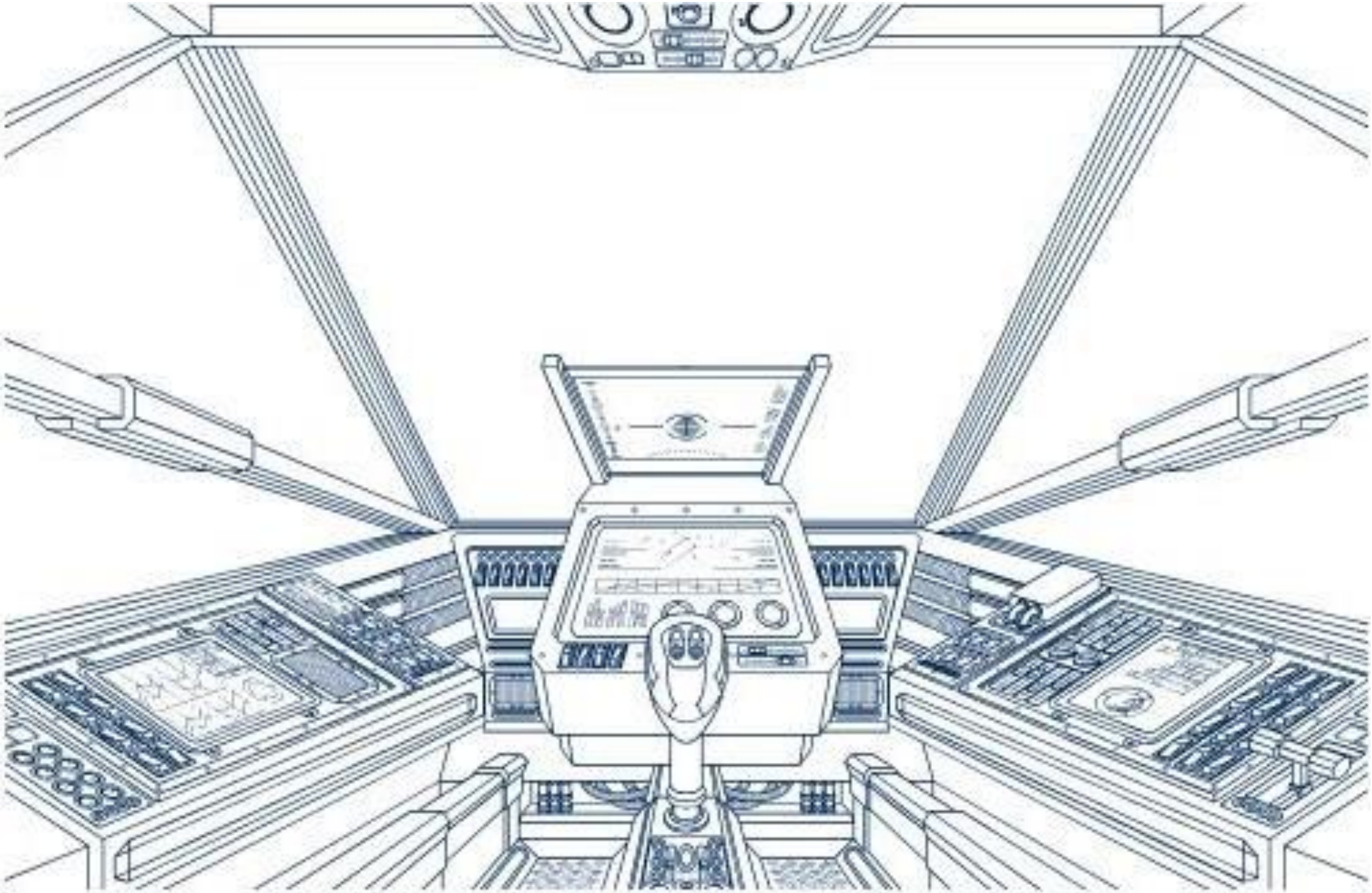
Enhanced Pilot Interfaces & Interactions for fighter Cockpit

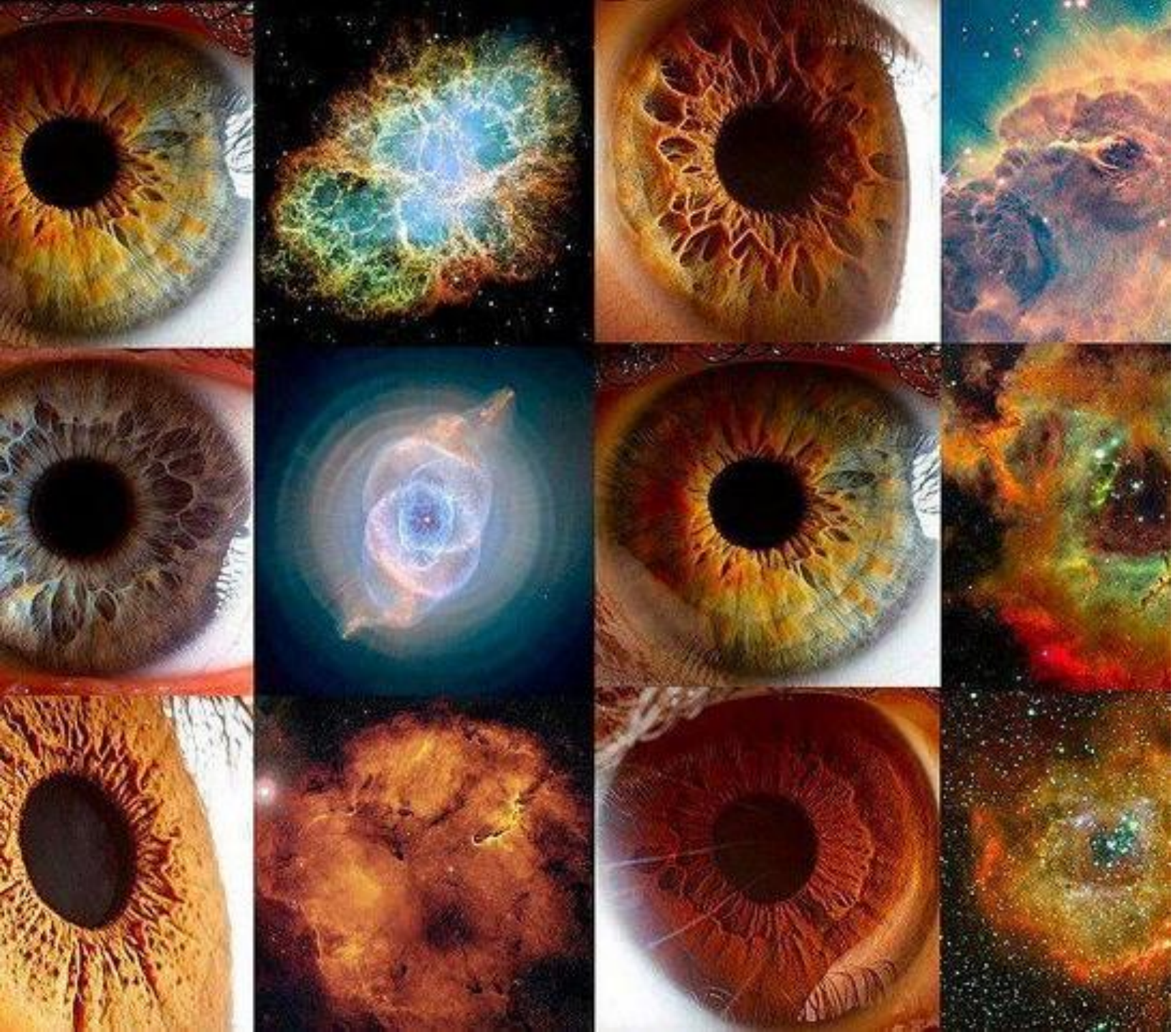
CHIGREECE CHAPTER
Connect. Engage. Inspire.



What is eye openness

What did we use before?

What did we learn from that?

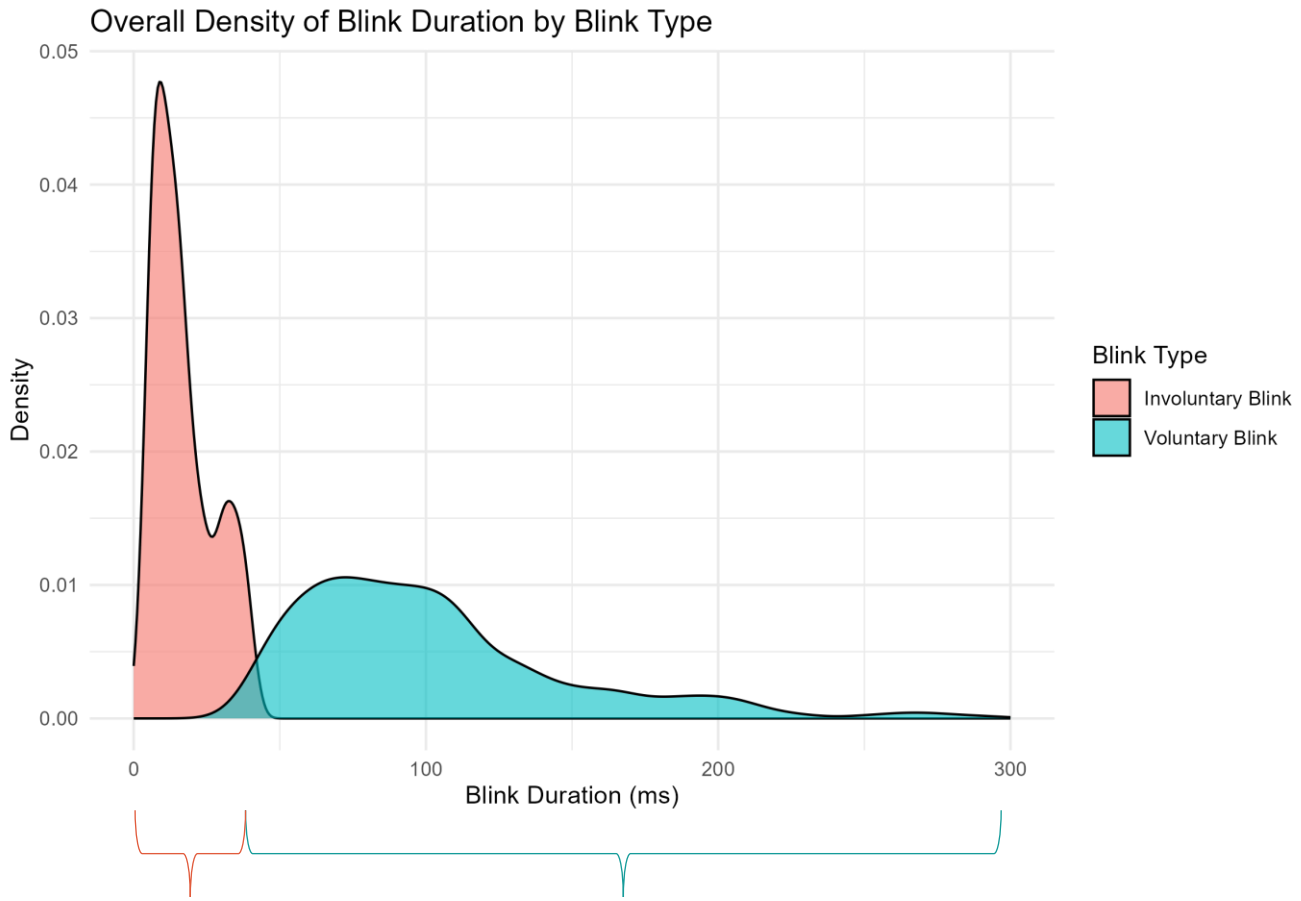


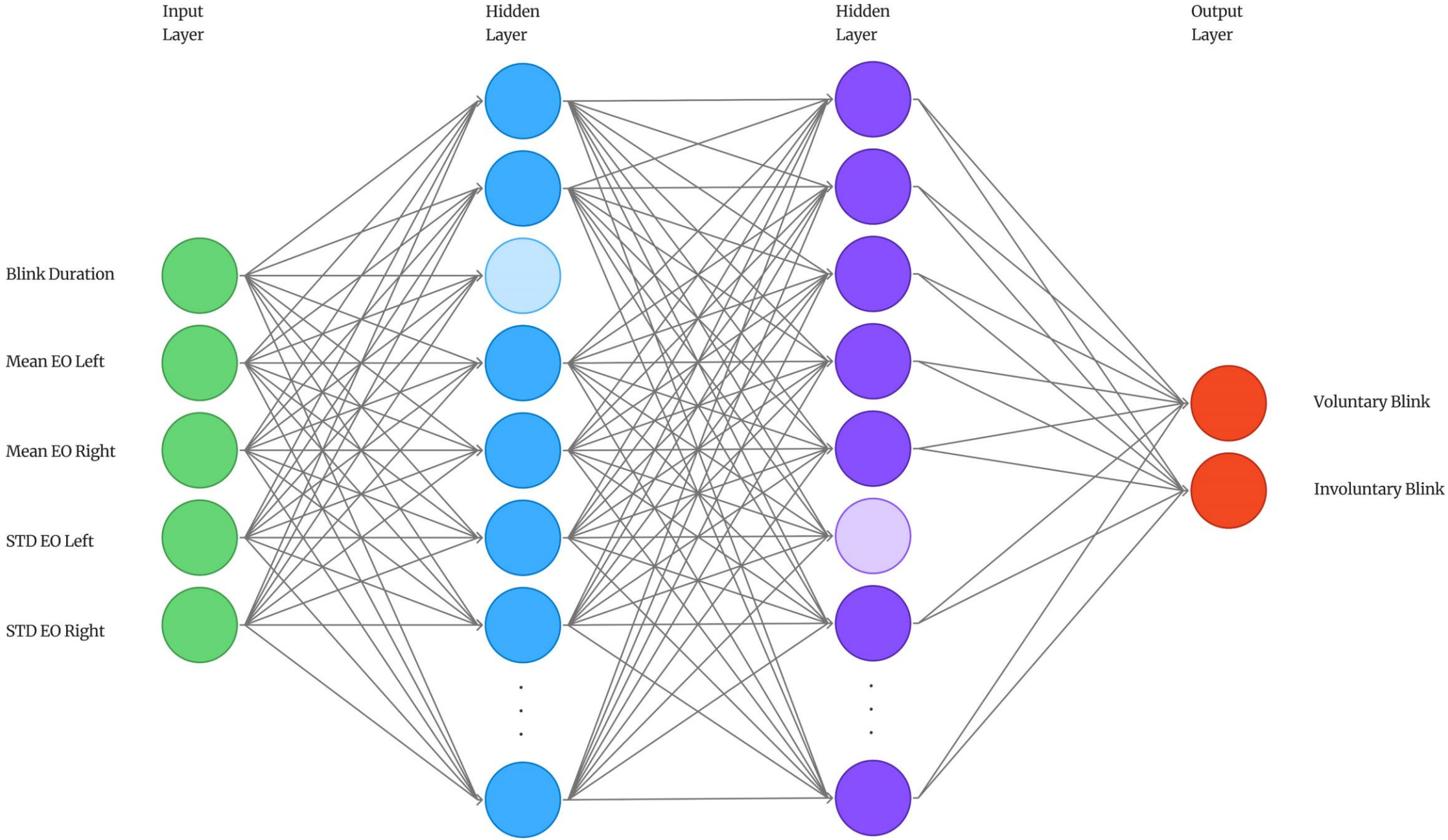
The experiment

- **Number of Participants:** 44
- **Within-subject** experiment
- **Equipment:** Tobii Pro Spectrum (300 Hz)

Results

$p < 0.001$, with a t-statistic of 13.843.




Input Layer
Hidden Layer
Hidden Layer
Output Layer
Blink Duration
Mean EO Left
Mean EO Right
STD EO Left
STD EO Right
Voluntary Blink
Involuntary Blink

Confusion Matrix

	Predicted: Involuntary	Predicted: Voluntary
True: Involuntary	1420	110
True: Voluntary	95	1310

92%

Accuracy during validation

*Past work has reached up to 90%

Thank you

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