

Early seizure detection impact in day-to-day life, real-time forecast models with mjn-SERAS device

PROPOSAL

For **drug-resistant epilepsy** patients, an alert system able to anticipate the onset of the seizures could enhance **safety and independence**.

We present a **real-world data study** with **mjn-SERAS**, an in-ear EEG device and an **Artificial Intelligence** algorithm that exploits forecasting models for **early seizure detection**.

The study assesses the device's **real-time** capability to **acquire EEG, analyze** it and send **alerts**.

PROJECT DATA

The data exploited in the study is:

116 days
of EEG recordings
analysed

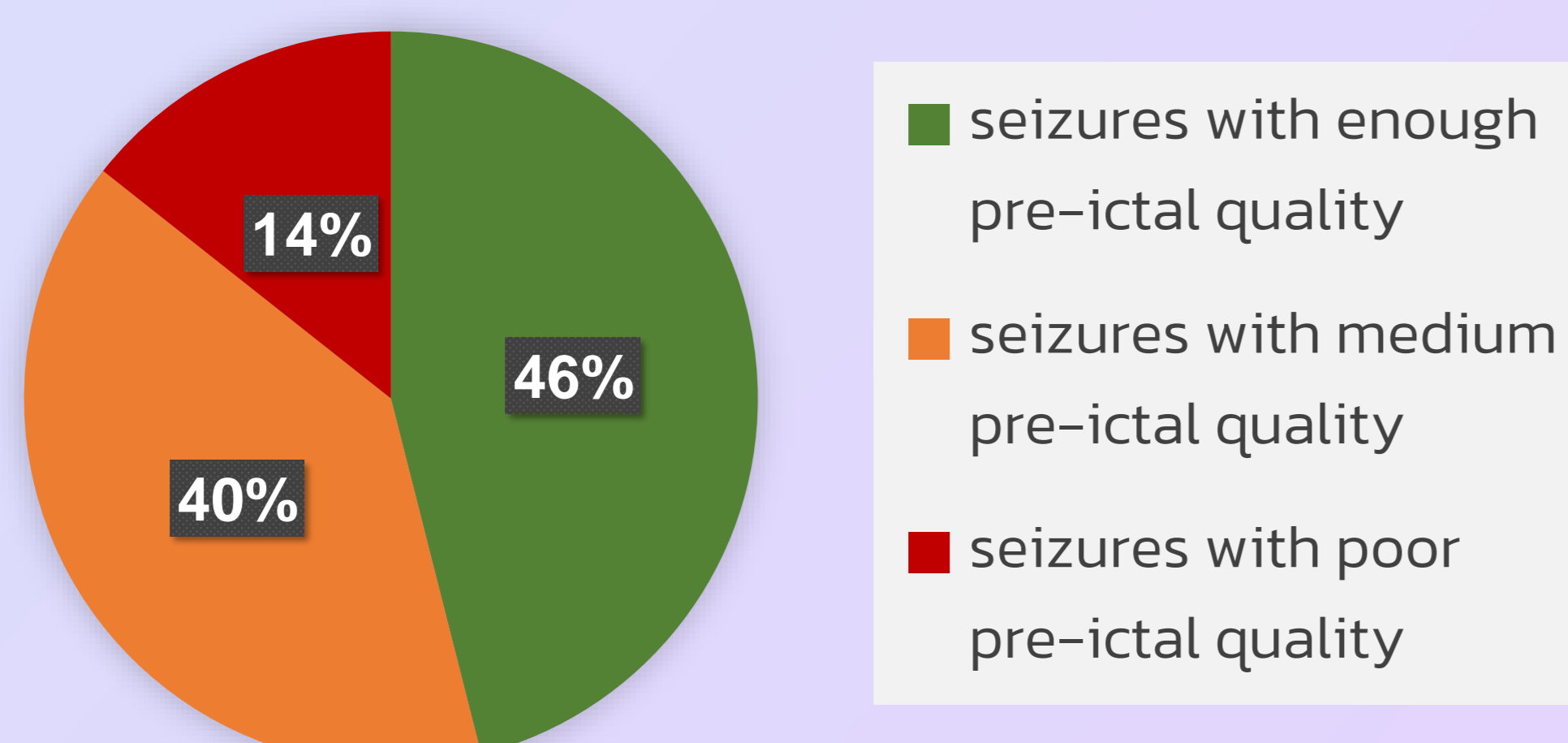
193 seizures
documented

13 subjects
with mjn-SERAS device

7 average
usage hours per
day

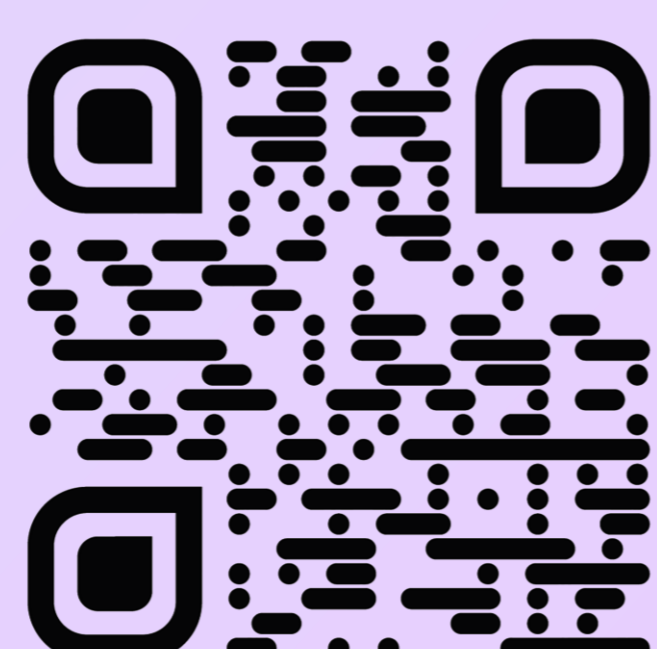
And the seizure quality distribution:

Pre-ictal Data Information



AUTHORS

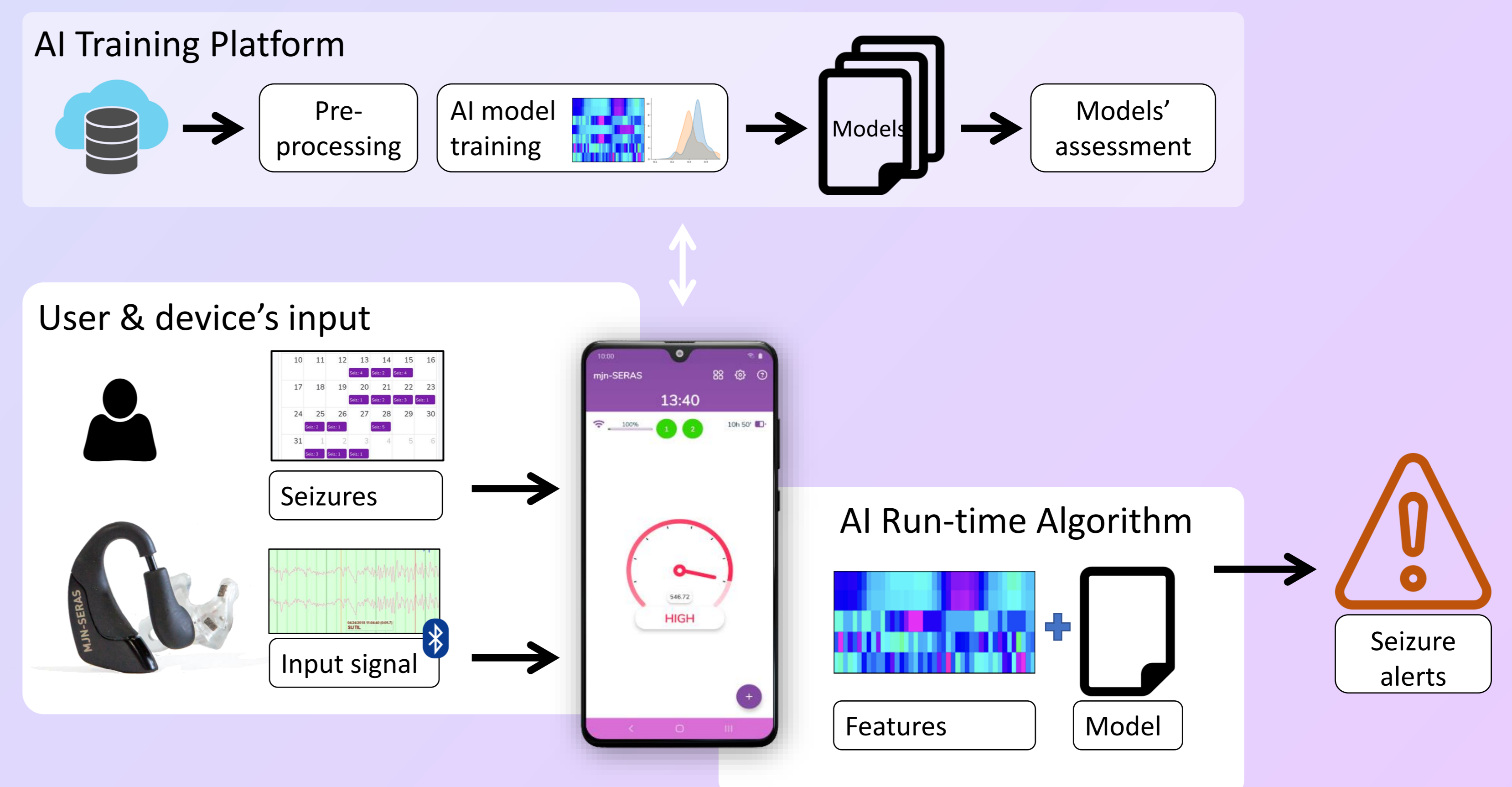
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MJN Neuroserveis, Girona, Spain;



METHODOLOGY

Our **wearable device** sends continuous data to the **mobile application** where it is analysed by AI algorithm.

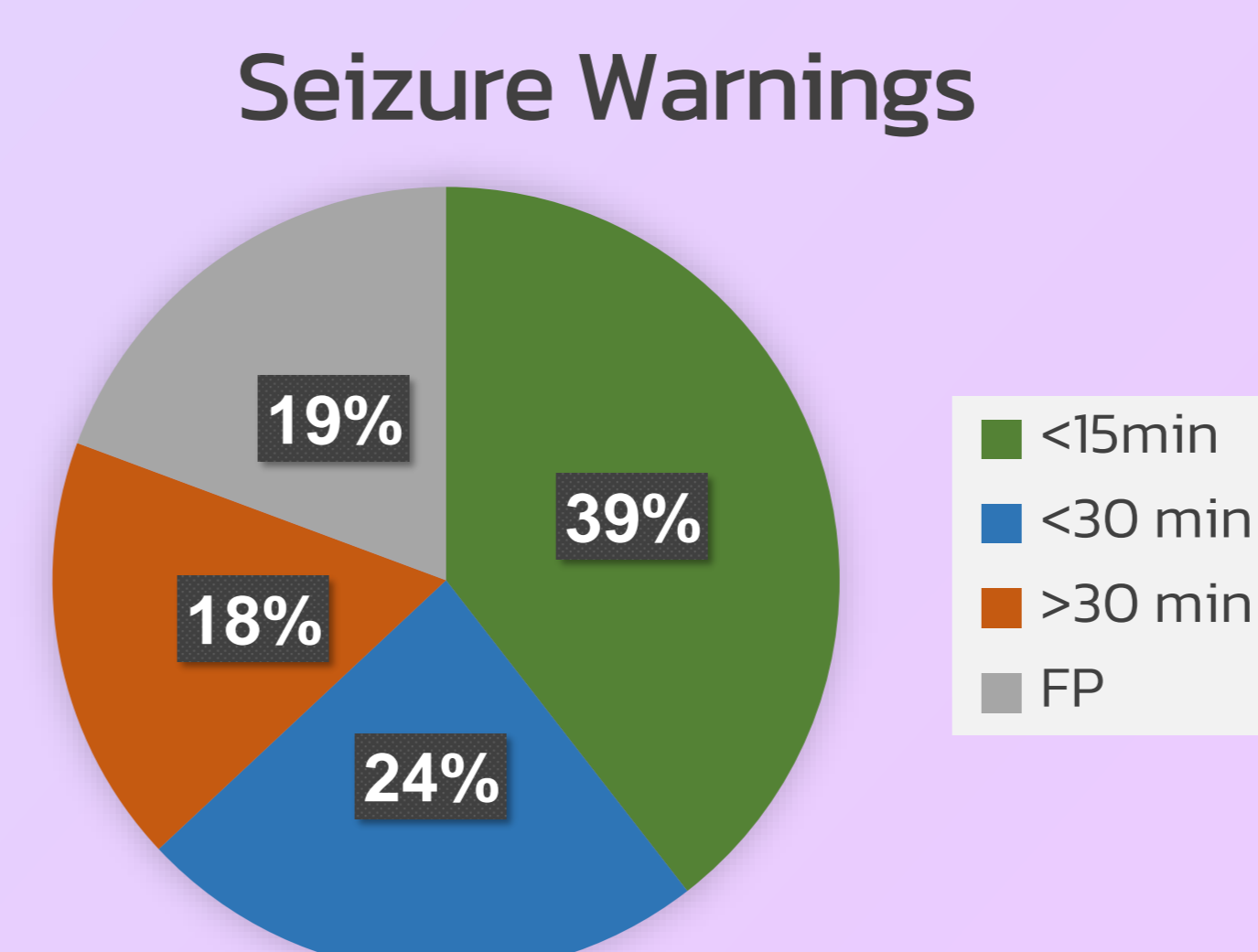
At the same time, it is sending data to **cloud servers** to perform our **machine learning training** process, generating **patient-specific** models.



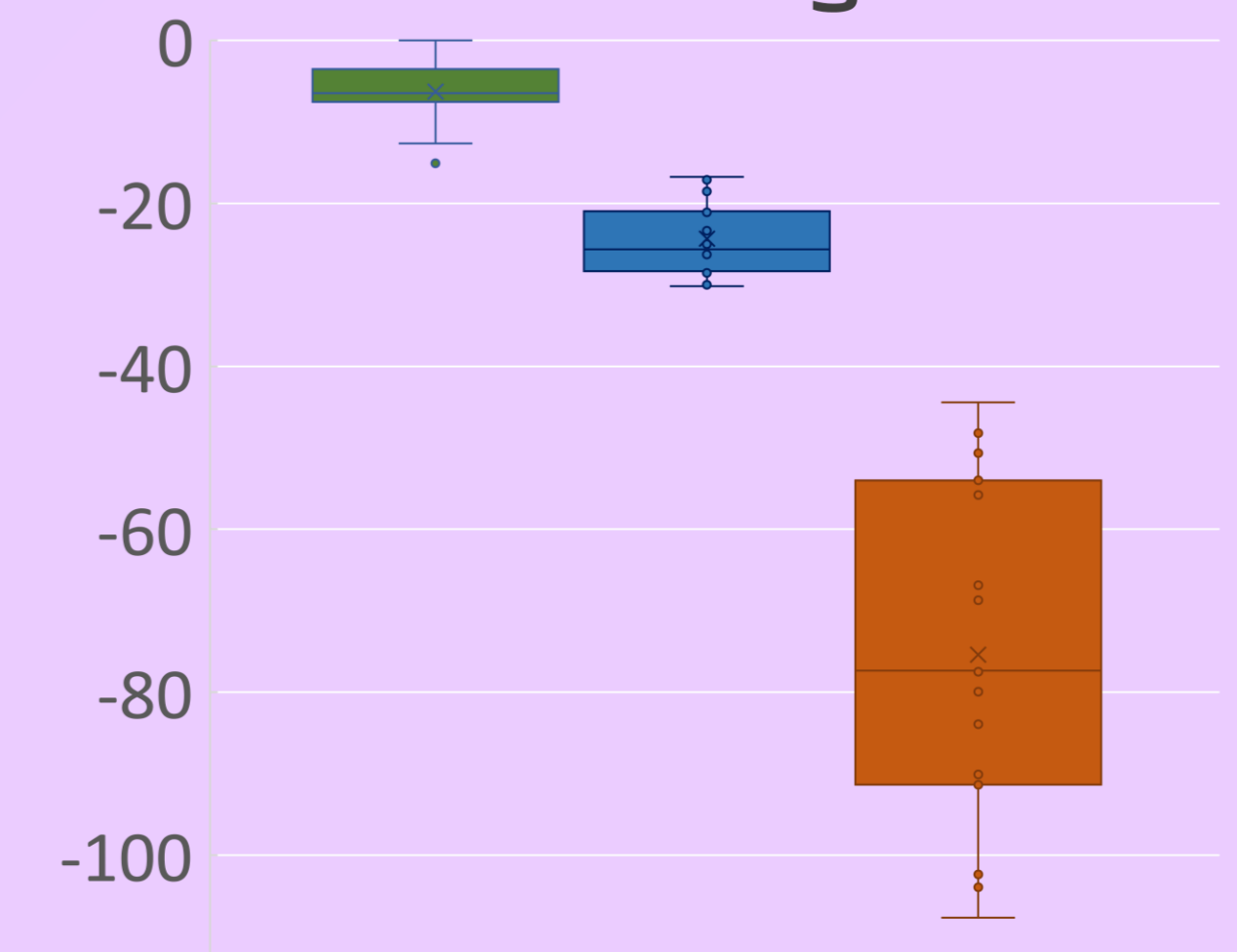
CONCLUSIONS

39% of seizures have an average anticipation time of **7 minutes**, **24%** an average of **26 minutes** and the rest an average of **77 minutes**.

Users with **more than 10 seizures** validated can achieve **82% performance**.



Seizure Warning Times



Performance by Ictal Days

