

Technology Offer



NEED: Migraine is a primary headache disorder characterized by recurrent headaches that are moderate to severe. Its more severe and chronic form affects about 2% of world population and attacks can last from two to 72 hours.

There is no effective cure for migraine, thus, people try to reduce pain in different ways: 1) Avoiding possible triggers (environmental, behavioural, dietary); 2) Use abortive medications (Ibuprofen, Triptans); 3) Try dangerous preventive medications. None of those remedies are effective for every migraineurs. However, doctors and patients agreed that if abortive medications are taken in advance pain severity could be reduced, thus, ameliorating life condition of sufferers.

PROBLEM: There are no objective methods to predict an upcoming attack and act timely. Available solutions to patients try to reduce frequency and intensity of attacks: 1) Pharmacological, abortive or preventive medications, which are not suitable for every patient, have considerable side effects on health and have an efficacy of about 40%; 2) neuro-stimulator devices, which have doubtful results, act on inner brain through electrical signals, not well accepted by medical community; 3) trigger trackers (on-paper or web applications), which rely on subjective feelings, act as calendar and provoke additional emotional charge on patient, which have to constantly monitor their daily life activities, in order to avoid triggers..

SOLUTION: Much effort has been put into finding a solution to migraine pain. However, so far, major solutions rely on pharmacological treatments or neuro-stimulatory medical devices. Recently, we have provided the first scientific evidence, that an objective prediction of migraine attack is possible. **We have developed an algorithm able to interpret real-time changes in physiological constants, and through machine learning, provide a prediction of migraine attack.** This technology will be incorporated in patch sensors, allowing maximum wearability and comfort for patients.



CURRENT STATUS: We have already developed a first prototype of our system to prove the feasibility of our approach. We have obtained migraine predictions with up to 47 minutes of advance (see Pagan et al. ¹), what is enough from a medical perspective. Now we are acquiring more beta testers to increase modelling, and confirm feasibility.

IPR STATUS: Copyright and patents applied.

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TYPE OF PARTNERSHIP CONSIDERED: In this phase we will require, collaboration with experienced companies in product design, sensors integration. We also seek investors or licensees.

REFERENCES

1 "Robust and accurate modeling approaches for migraine per-patient prediction from ambulatory data." *Sensors* 15.7 (2015): 15419-15442."