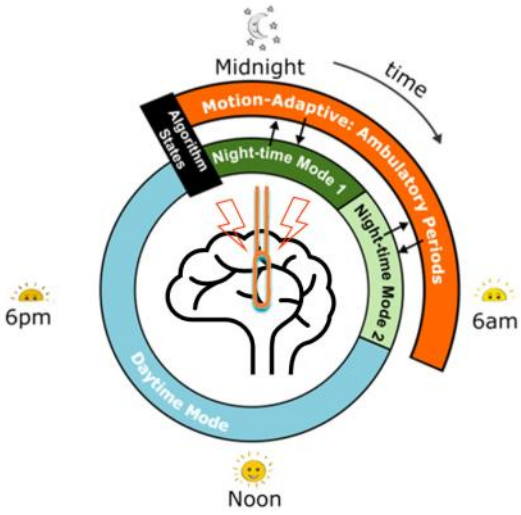
PROJECT NUMBER

17465

Closed-loop deep brain stimulation to influence sleep state

Using closed-loop deep brain stimulation to modulate a sleep cycle.

Applications: Neuromodulation, Neurostimulation, Deep-brain stimulation, Sleep disorder



Features	Benefits
Allows transitioning to lighter or deeper sleep through deep-brain stimulation	Avoids pharmacological agents to address sleep disorders, which may impact the action of other drugs and induce tolerance
Potential to be used to treat excessive daytime sleepiness (e.g. narcolepsy), and pathological sleep caused by neurological disorders	Provides treatment options to under-served patients such as young people who have recovered from traumatic brain injury, where no drug treatment currently exists

Features	Benefits
Personalised, adjustable pulses delivered according to patient-specific sleep features and recorded physiological signals (e.g. from wearables), or according to a desired rhythm	Adaptable to the patients' real-time needs and in sync with circadian rhythms
Software/stimulation patterns can be incorporated into pre-implanted devices such as those targeting Parkinson's disease, tremor or psychiatric disease	Avoids further invasive and costly procedures; Improves the patients existing therapy by alleviating sleep-related symptoms
Can enhance plasticity mechanisms	Ability to modulate areas of the brain relevant to learning and memory

Available for

- Co-development
- Consulting
- Licensing

To find out more, contact enquiries@innovation.ox.ac.uk and quote the project number.

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