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(57) Abstract :

ABSTRACT AI GUIDED NEUROADAPTIVE INTERIOR ENVIRONMENT LIGHTING SYSTEM This invention relates to environmental control systems and combines physiological data from a sensor pack including an HRV sensor board and galvanic skin response sensor with ambient readings from an environmental sensor hub comprising lux, colour temperature, acoustic, and VOC sensors. An edge-processing node time-stamps and processes the data to yield a unified stress index using advanced AI methods such as LSTM networks or Bayesian fusion enhanced by noise reduction via unsupervised clustering. A reinforcement learning agent utilizes this index to compute iterative adjustment vectors via an on-policy algorithm, for instance, Proximal Policy Optimization, which dynamically modulates a multi-channel actuator stack controlling lighting, acoustics, scents, and visual displays, while a connectivity module securely transmits data for remote management.

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