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(57) Abstract :
An adaptive user interface system based on cognitive load comprises a signal acquisition module (101), a feature synthesis module (102), a cognitive load inference engine (103), a policy repository (104), an adaptation controller (105), a rendering orchestration module (106), and a user interface presentation layer (107). Live interaction signals are converted into cognitive descriptors to infer a load state. The system responsively simplifies, emphasizes, defers, or restores interface elements within policy limits, thereby reducing overload exposure, preserving essential controls, and improving continuity, usability, and task performance.

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