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(57) Abstract :

A context-aware recommendation system is disclosed comprising a multi-modal input interface (101), a preprocessing and encoding module (102), a context interpretation engine (103), an item representation repository (104), a fusion intelligence layer (105), a recommendation generator (106), and an output interface (107). Heterogeneous textual, visual, behavioral, temporal, and environmental signals are transformed into aligned representations and dynamically weighted according to present session conditions. Composite relevance structures are generated for candidate items and ranked to deliver personalized recommendations responsive to current context, sparse histories, and varying signal reliability across interactive digital environments.

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