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(51) International classification	:G06N 20/00, G06N 3/08, G06N 3/04, G06N 5/04, G06N 5/02	(71)Name of Applicant : 1)NOIDA INSTITUTE OF ENGINEERING & TECHNOLOGY Address of Applicant :19, Knowledge Park-II, Institutional Area, Greater Noida – 201306, Uttar Pradesh, India. Uttar Pradesh India
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(57) Abstract :

A self-supervised learning system for sparse industrial data is disclosed. The system comprises a data ingestion interface (101), a sparsity-aware preprocessing engine (102), a multi-view representation generator (103), a self-supervised objective controller (104), a latent embedding model (105), a downstream adaptation interface (106), and an industrial validation manager (107). Unlabeled industrial records having irregular measurements, event gaps, and mixed modalities are transformed into latent embeddings through proxy learning objectives. The embeddings support downstream fault diagnosis, anomaly assessment, quality prediction, and maintenance analytics with reduced dependence on extensive labeled industrial datasets.

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