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(51) International classification	:H04B0007185000, G06N0020000000, H04L0001000000, G06F0001324000, H04W0016280000	(71) <b>Name of Applicant :</b> <b>1)NOIDA INSTITUTE OF ENGINEERING &amp; TECHNOLOGY</b> Address of Applicant :19, Knowledge Park-II, Institutional Area, Greater Noida – 201306, Uttar Pradesh, India. Uttar Pradesh India
(31) Priority Document No	:NA	(72) <b>Name of Inventor :</b>
(32) Priority Date	:NA	<b>1)DHEERAJ TRIPATHI</b>
(33) Name of priority country	:NA	<b>2)RANJAN KUMAR</b>
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(57) Abstract :

The invention discloses an AI-based system for real-time satellite signal optimization comprising a signal quality detector (101), AI processing unit (102), adaptive control module (103), environmental sensors (104), satellite transceiver (105), and ground station interface (106). The system predicts atmospheric disturbances, mitigates interference, reduces latency, and dynamically adjusts transmission parameters. By integrating predictive modeling and reinforcement learning, the invention ensures reliable, interference-resilient, and energy-efficient satellite communication across diverse applications, offering a scalable solution for managing large satellite constellations.

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