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NEURAL NETS USE FOR SATELLITE TELEMETRY ANALYSIS IN APPLICATION FOR  
KAZSTSAT MISSION

**Abstract**

KazSTSAT mission was launched on the 3rd December 2018 and so far looking good with some minor anomalies encountered during commissioning phase. But there is a need in a tool analyzing vast scope of information obtained by KazSTSAT spacecraft operation center. The research has the aim to make use of automatic self-learning machines that can predict future states of the space system based on the archived and real-time telemetry and telecommand data.

The expected output is the deep learning software application that can be widely used for:

- Failure Detection Isolation and Recovery (FDIR) analysis as the real-world modelling environment;
- System functional tests as the additional verification method of the Concept of Operations;
- Spacecraft operators training to predict final spacecraft subsystems states in case of the intentionally induced anomalies;
- On-orbit commissioning and operations to reduce the risks of fatal mission anomalies.

The paper provides an overview of the application development steps, the difficulties encountered during the design and implementation on real world telemetry data.