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[Abstract]

## **Machine Learning for Space Weather: Overview of Research Efforts at Georgia State University**

Viacheslav M Sadykov<sup>1</sup>

<sup>1</sup>Georgia State University, Atlanta, GA, USA

ORCID number: 0000-0002-4001-1295

**Abstract:** Over the past decade, the Heliophysics community has increasingly explored machine learning (ML) techniques, as reflected in the exponential growth of peer-reviewed publications, conference presentations, and funding opportunities. Among the key areas of ML application, space weather forecasting stands out as a field with tremendous potential for data-driven decision-making. This contribution highlights some of the ongoing ML research efforts at Georgia State University, including: (1) ML-driven forecasting of solar transient events (STEs) such as solar flares, coronal mass ejections, and solar energetic particles; (2) intertwining the ML with physics-based simulations for further enhancement of predictions of STEs; (3) the development of ML-ready datasets and data exploration tools for improved forecasting of STEs, radiation exposures at aviation altitudes, and other applications.

**Keywords:** Space Weather, Machine Learning, Data Mining

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