SnT 2025 8 SEPTEMBER ONLINE DAY 9 TO 12 SEPTEMBER AT HOFBURG PALACE, VIENNA & ONLINE
CTBT: SCIENCE AND TECHNOLOGY CONFERENCE

Identifying Misformed Events Using Classification Techniques and Likelihood-Based Model Fit Scores

LIGHTNING TALK

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- Our poster focuses on identifying and reducing misformed events in the SEL1 bulletin.
- During 2013-2023, less than half of SEL1 events make it into the LEB. Reducing misformed events could significantly ease analyst workloads.
- Methodology:
  - We used the LEB as a trusted source of reliable events to model whether a station should detect an event, and if so, what type of signal to expect.
  - By matching SEL1 to LEB, we trained a classifier to distinguish legitimate from misformed SEL1 events. The model relied on likelihood-based features that were designed to measure how plausible each event was under the LEB models. A key feature reflects whether a station was expected to detect an event and whether it actually did.
- Our classifier identified 72% of false events while only flagging 5% of legitimate ones on a one-year long holdout test set. It also provided insights for correcting low-score events.
- If you want to find out more, come over for a chat in front of our poster!

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