Using Machine Learning to Catalog Accreted Stars in Gaia ESA DR3 Survey

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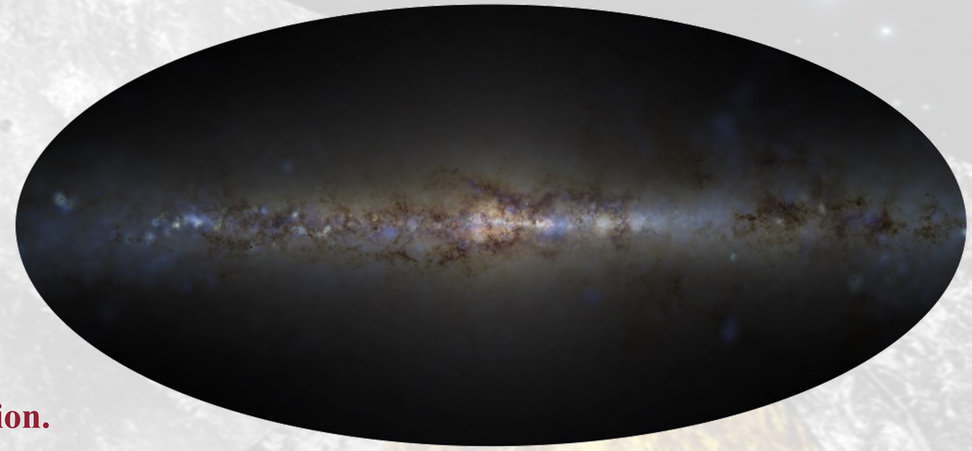
OBJECTIVE

To build an Accretion Catalog of the Milky Way.

i.e. To determine which stars were born within the Milky Way (in situ stars), and which ones merged with us later (accreted stars).

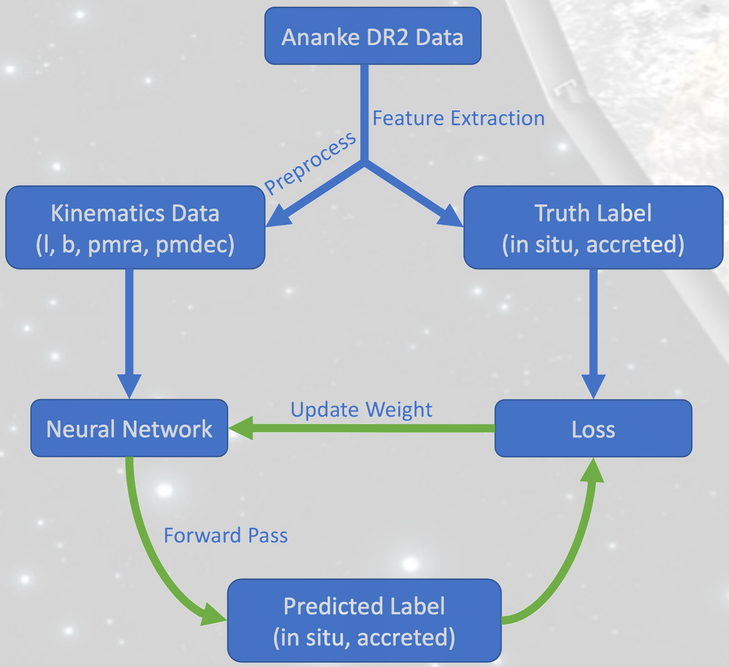
KEY CONCEPTS

Gaia ESA DR3, FIRE Simulation, Galaxy Formation.

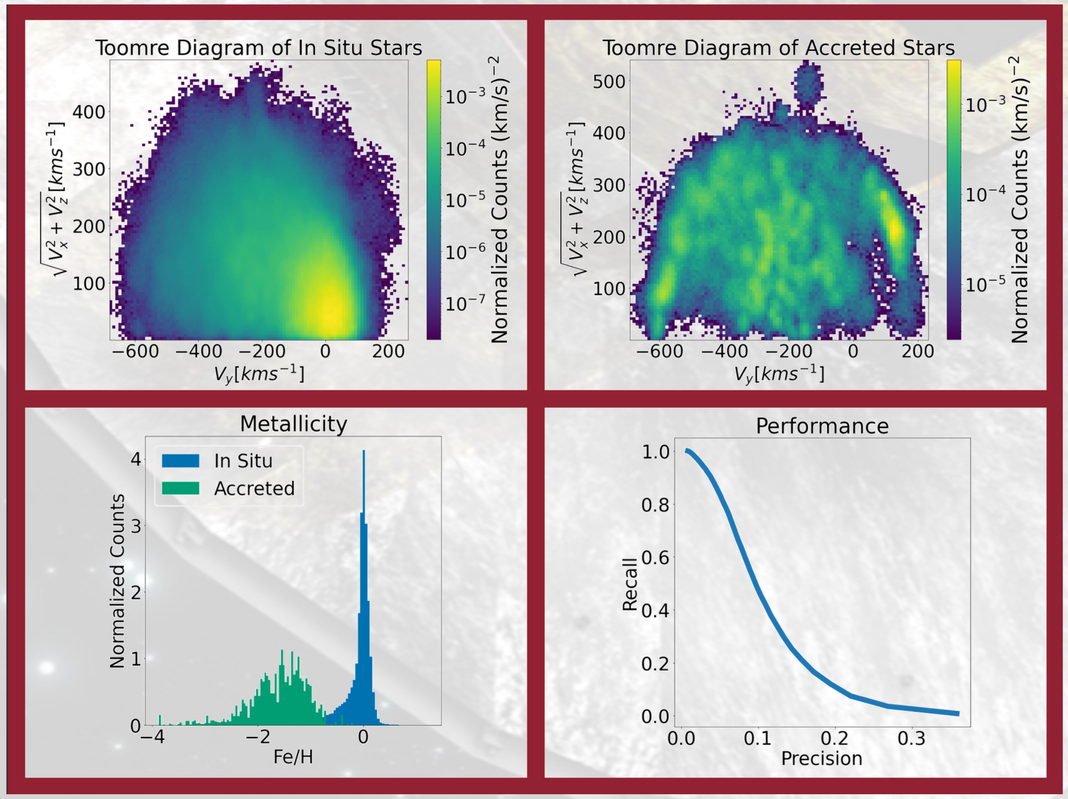


Mock galactic projection within a Latte simulation of a Milky Way-like galaxy.

METHODS



RESULTS



NEXT STEPS

- **Apply "transfer learning."**
- **Apply on Gaia DR2.**
- **Repeat for Ananke and Gaia DR3.**
- **Publish the Accretion Catalog.**

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Scan for simulated galaxy formation.