Knowledge Discovery Interest Group

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KD-IG

“Knowledge Discovery is the task of processing and analyzing astronomical datasets with the aim of **extracting new knowledge**. *This endeavor spans multiple disciplines including visualization, data access and exploration, machine learning, statistical methods and workflow orchestration.”*

KDIG themes

ML-proofing existing and future science platforms

- Are existing astronomy science platforms compatible with ML methods?
- Investigate whether science platforms can access tabular and non-tabular data through VO interfaces.
- Building libraries of well-established pre-trained models and integrating them in science platforms.
- Collect users' requirements for science platforms to support ML methods.

Artificial Intelligence

- Coordinating an IVOA-wide effort to scope the current and future potential impact of AI on astronomical technology.
- Collecting use cases and requirements for the integration of open and commercial LLMs in IVOA-relevant services.
- Investigating best practices and experience of early adopters of AI techniques in the VO world.

A *Target of opportunity* for KDIG

Astronomy & the Artificial Intelligence revolution

- → ◇ Widening applicability in Astronomy of Large Language Models, Foundation Models, multi-modal learning techniques
- → ◇ Increasing expertise in the community fuels innovation and adoption of advanced KD methods
- → ◇ Possible areas of development: exploration of heterogenous datasets, generative AI for simulation of data, data-bibliography multi-modal learning, optimization of mission operations?

"The only limit to AI is human imagination"

(Chris Duffey, disputed)

KD-IG @ 2024 ~~Spring~~ May InterOperability Meeting

KD-IG session: Wednesday 05/22, 11:00 AM (AEST)

- Alberto Accomazzi

  BiblioPile: Building a Dataset to Support AI-enabled Bibliography Curation efforts

- Yan Shao

  Generative Named Entity Normalization for Astronomical Facilities

- Kai Polsterer

  Update on Spherinator/HIPSter/Jasmine, and how ML based explorative workflows are evolving and connect/integrate with the VO

- ☐ Panel discussion on the impact of AI technologies on the VO/IVOA

  Panelists: A. Accomazzi, R. Martínez-Galarza, K. Polsterer, Y. Tao