Knowledge Discovery Interest Group

Chair: Yihan Tao
Vice-Chair: Open

IVOA Interop, Malta
Nov 15, 2024

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.

KD-IG Roadmaps

Artificial Intelligence and Large Language Models in VO:

- Collecting use cases and requirements for integrating AI and LLMs in the VO context.

- Investigating best practices of building AI-ready datasets for developing Astronomical foundation models and agents.

- Facilitating an IVOA, inter-group discussion on the current and future potential impact of AI on VO standards.

ML-proofing existing and future science platforms:

- Investigating where existing science platforms for astronomy conpatible with ML methods.

- Coordinating science platforms and services for bringing ML/AI methods to data.

KD-IG @ 2024 November InterOp

- Joint session with GWS/DSP on **Saturday, November 16, 2024 14:00-15:30**
- **Theme: AI in Astronomy and Impact on IVOA Standards**
- **5 Talks (10'+2')**

Speaker	Title
Andre Schaaff	NLP-chatbot R&D at CDS
Sebastian Trujillo Gomez	'Spherinator + HiPSter: from the known unknowns to the unknown unknowns'
Giuseppe Riccio	Integrating AI tools in data analysis frameworks: the Vera Rubin LSST and Euclid cases
John Abela	The Computational Evolution of Human Intelligence in AI
Sara Shishehchi	Leveraging Large Language Model (LLM) - based Agents with Multiple Tool Integration for Enhanced Search in the Canadian Astronomy Data Centre

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- **Theme: AI in Astronomy and Impact on IVOA Standards**
- **Discussion**:
  - **Panel:** Andre Schaaff, Sebastien Trujillo, Giuseppe Riccio, John Abela, Chenzhou Cui
  - **Understanding AI Requirements** - data formats and structures, metadata elements
  - **Adapting Existing Standards** - support AI workflows, use cases
  - **Enabling Interoperability, Reusability and Data Quality for AI workflows**
- More Info: https://wiki.ivoa.net/twiki/bin/view/IVOA/InterOpNov2024KDD-GWS