



# Knowledge Discovery Interest Group

Chair: Yihan Tao

Vice-Chair: Open

IVOA Interop, Malta

Nov 17, 2024

# KD-IG @ 2024 November InterOp

- Joint session with GWS/DSP on **Saturday, November 16, 2024 14:00-15:30**
- **5 Talks**
  - **André Schaaff - NLP-chatbot R&D at CDS**
    - CDS explores NLP and AI integration for astronomical data querying, evolving from traditional forms to modern chatbot solutions.
    - utilized various frameworks (Stanford NLP, Dialogflow, Rasa) and now tests OpenAI API for improved service delivery
    - balancing innovation with practical service needs while leveraging VO standards and astronomical databases
  - **Sebastian Trujillo Gomez - 'Spherinator + HiPster: from the known unknowns to the unknown unknowns'**
    - Shifting from expert-guided learning to unbiased machine discovery
    - Tools enable interactive exploration of complex astronomical data types

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  - **Giuseppe Riccio - Integrating AI tools in data analysis frameworks: the Vera Rubin LSST and Euclid cases**
    - AIDA: Modular web application for monitoring astronomical data acquisition systems.
    - Successfully implemented for ESA Euclid mission and Rubin Telescope/LSST.
  - **John Abela - The Computational Evolution of Human Intelligence in AI**
    - Debates whether intelligence is purely computational in AI development
    - Transformers show promise but face data and computing limitations
  - **Sara Shishehchi - Leveraging Large Language Model (LLM) - based Agents with Multiple Tool Integration for Enhanced Search in the Canadian Astronomy Data Centre**
    - Developed a chatbot using LLM-based agents to translate natural language queries into SQL for CADDC
    - Implemented preprocessing and ADQL generator agents with multiple tools to handle errors and improve query accuracy

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14:00-15:30
- **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**
- **Next Steps:**
  - Continue collaborate with GWS and other groups to work on supporting AI/ML/DM workflows in the context of VO
  - Look forward to working with a new vice-chair



Thanks to all the speakers and panelists  
mailing list: <http://mail.ivoa.net/mailman/listinfo/kdd>