



HITS

Heidelberger Institut für
Theoretische Studien

Knowledge Discovery Interest Group
virtual IVOA interop meeting Sydney

Symmetry: $\Delta(A, B) = \min\{d(A, \phi(B)) \mid \phi \in \Phi\}$
 $= \min\{d(\phi(B), A) \mid \phi \in \Phi\}$ by symmetry of d
 $= \min\{d(B, \phi^{-1}(A)) \mid \phi \in \Phi\}$ because of [A3]
 $\geq \Delta(B, A)$

Triangular

(Faint background text includes mathematical expressions like $\Delta(A, B) = 0 \rightarrow A \sim B$, $d(A, \phi(B)) = 0$, and $\phi = \text{argmin}_{\phi \in \Phi} \{d(A, \phi(B))\}$)

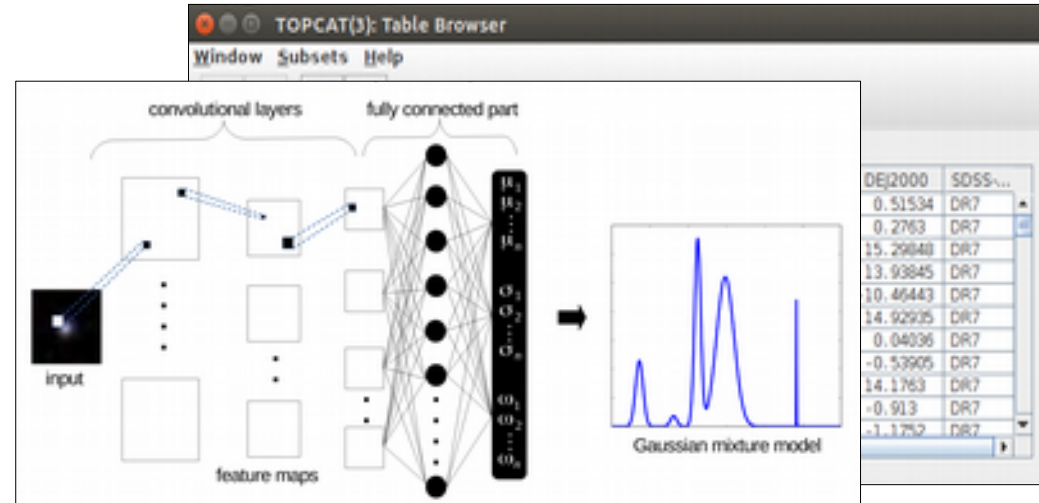
KDIG / ongoing work

Database storage for ML

- store uncertainties
- queries with uncertainty
- reproducibility / training & validation data
- provenance

Explorative access

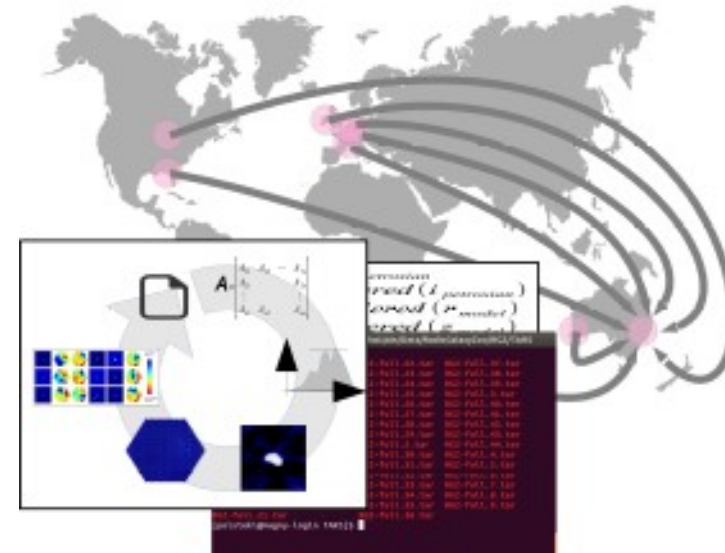
- developing prototypes
- defining requirements
- annotation: semantics/DM
- see video by D'Isanto
link on KDIG wiki page



KDIG / ongoing work

Bringing code to the data

- how to find resources
- how to package code
- how to register functionalities
- how to orchestrate workflows across different centers



Accessing the VO for ML tasks, polymorphic access

- HiPS is perfect to get data as required by many deep learning applications
→ hipsy (Tomas Boch)
+ very cool SIA HipsToFits prototype (François Bonnarel)
- Experiment using Pan-STARRS data

KDIG Related Sessions

Discussion: is the VO a digital plate archive or an observatory?

- machine learning analysis is building telescopes for a virtual sky
- tables are great but how to do data-science on images, spectra, cubes, time-series? (Single Source Science)
- are science platforms a solution? how do we standardize those
GWS → Session on science platforms on Tuesday 20:30 UTC

KDIG Sessions

- Possible small KDIG session next week. Will be announced on KDIG wiki.