Data Sciences and Analytics Centre
DSAC

Kamal Karlapalem   kamal@iiit.ac.in
Data mining, visual data analytics, workflow management systems, database systems, agents & applied robotics.

Intensive Data Visualization: Visualize subspace clusters, overlaps, regions of influence. Cluster driven visual data exploration.

Semantics Extraction from Actionable Text: Detective novels: Extract evidence, determe culprits, determine spatial and temporal events and tasks from the text. Also for Medical documents.

Workflow Systems: Workflow of tasks in IoTs and electronic contracts, and build conceptual models for them.

Agents & applied robotics: Design autonomous, intelligent agents for applications in the domain of Multi-Robot and Multi-Agent Systems.

Vikram Pudi   vikram@iiit.ac.in
Data mining algorithms, Research assistants, Applications & systems.

Data Mining Algorithms: Simple, modular, domain independent and data driven algorithms for classification, regression, frequent patterns, similarity and clustering on diverse kinds of data.

Applications: NLP (disambiguation, POS tagging), Research assistants, Viral simulator, Music mining, predict cricket winners

Systems:

Metabolomics LIMS: Bio-informatics researchers can upload and analyze metabolomics data.

Plug Load Identifier: Identify devices plugged into a power socket.

Data Foundation: Repository of datasets for AI/ML

P. Krishna Reddy   pkreddy@iiit.ac.in
Data mining, IT for agriculture, Decision support systems.

Data / Web mining: Frequent patterns (Periodic, rare, coverage, diverse), Search engine advertisement, Banner advertisement placement, E-commerce, Recommendation systems, Link-based community extraction, Document representation and classification.

Database Systems: Schema summarization, Transaction synchronization, Database recovery, Data replication, Speculative transaction management, Memory efficient mining, User interfaces, Weather-based decision support systems.

IT for Agriculture: Personalized agro-advisory, Systems for bridging lab to land gap, Virtual crop labs for agriculture education, Location-specific content development, Agriculture planning tools for a farmer.

IT for law: Finding similar judgments.

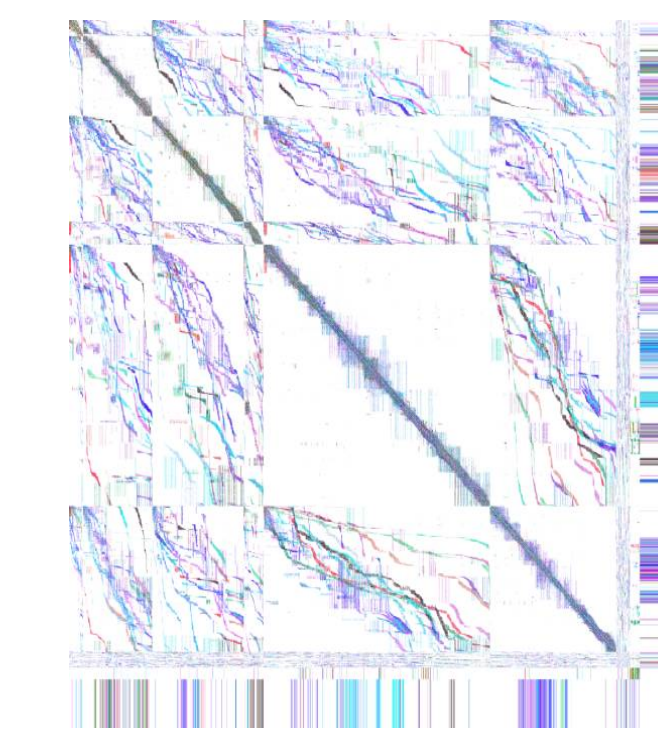### Lini Thomas   lini.thomas@iiit.ac.in
Skylines, automated medical document mining and graph analytics.

Medical Data Analysis: Tag medical entities like drugs, disease terms, treatments, etc in medical documents. Detect outliers in clinical trials. Medical document search (query expansion using fuzzy logic, relevance feed-back).
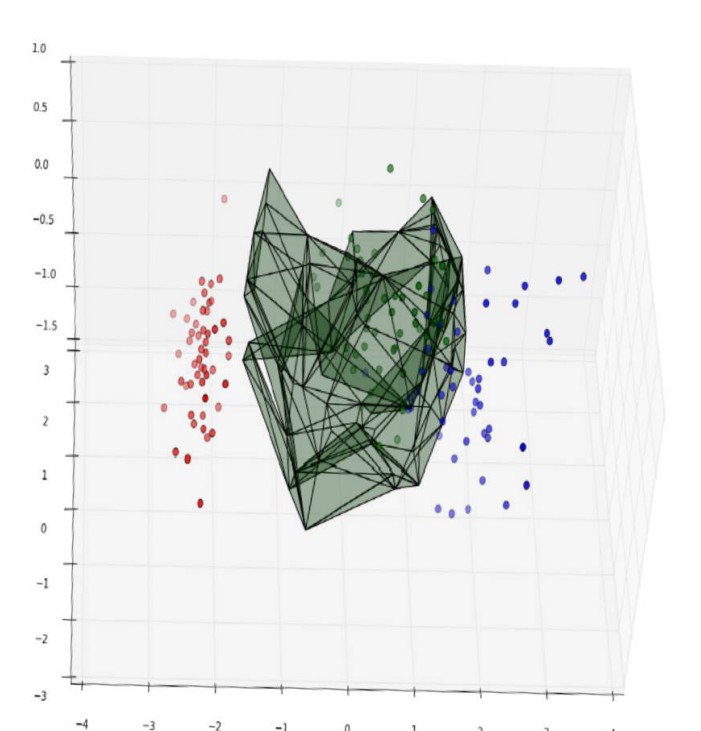
Skylines: Skyline analytics & visualisation.

Clustering: Generate clusters of varying densities and shapes by estimating local density, identify outliers, perform on high dimensional data.

Graphs Mining: Graph analysis on evolving graphs. Determining maximal frequent subgraphs where the graph database can undergo changes.
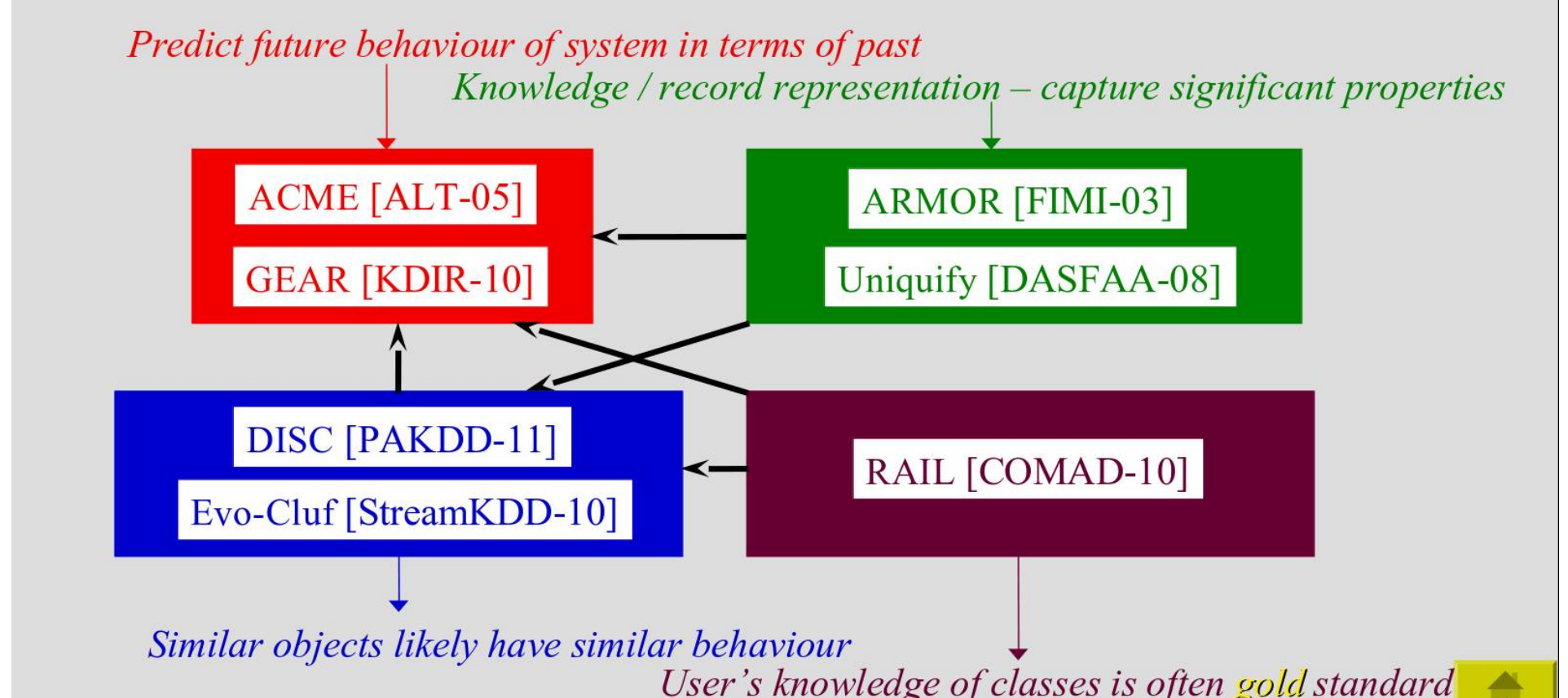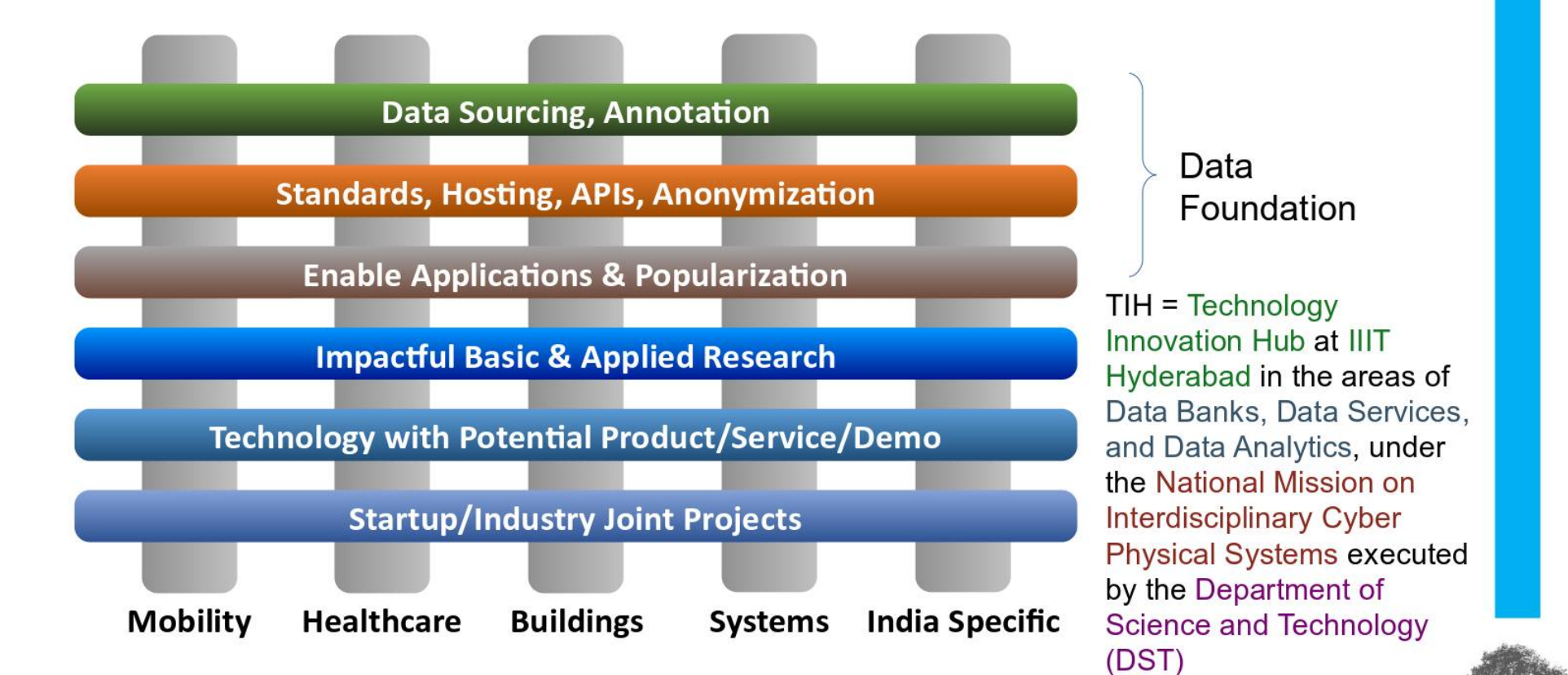
HEIDI VAKD-2009

Region of Influence VDA 2016

Grand Unified System

Predict future behaviour of system in terms of past

Knowledge / record representation – capture significant properties

ACME [ALT-05]
GEAR [KDIR-10]
ARMOR [FIMI-03]
Uniquify [DASFAA-08]
DISC [PAKDD-11]
Evo-Cluf [StreamKDD-10]
RAIL [COMAD-10]

Similar objects likely have similar behaviour

User's knowledge of classes is often gold standard

TIH / Data Foundation Scope

Data Sourcing, Annotation
Standards, Hosting, APIs, Anonymization
Enable Applications & Popularization
Impactful Basic & Applied Research
Technology with Potential Product/Service/Demo
Startup/Industry Joint Projects

Mobility   Healthcare   Buildings   Systems   India Specific

Data Foundation

TIH = Technology Innovation Hub at IIIT Hyderabad in the areas of Data Banks, Data Services, and Data Analytics, under the National Mission on Interdisciplinary Cyber Physical Systems executed by the Department of Science and Technology (DST)