

BLIZAAR

HyBrid VisuaLIZation of DynAmic MultilAyer GRaphs
International Collaborative Research Project (PRCI)
France/Luxembourg

Coordinators

Bruno Pinaud (bruno.pinaud@u-bordeaux.fr)

Mohammad Ghoniem (mohammad.ghoniem@list.lu)



Project Summary

- Main objective: **exploration and analysis of multilayer dynamic networks encountered in two main application domains**
 - Dynamic multilayer networks are often needed nowadays in many application domains
 - Existing visual analytics approaches need to be adapted and improved
 - Two application domains with real-world datasets: digital cultural heritage and life sciences
- Expected contributions:
 - Exploring and classifying homogeneous and hybrid approaches to visualize dynamic multilayer networks,
 - Designing novel interactive prototypes to explore these visualizations after building a clear understanding of the user's task,
 - Evaluating these approaches in practice with domain experts

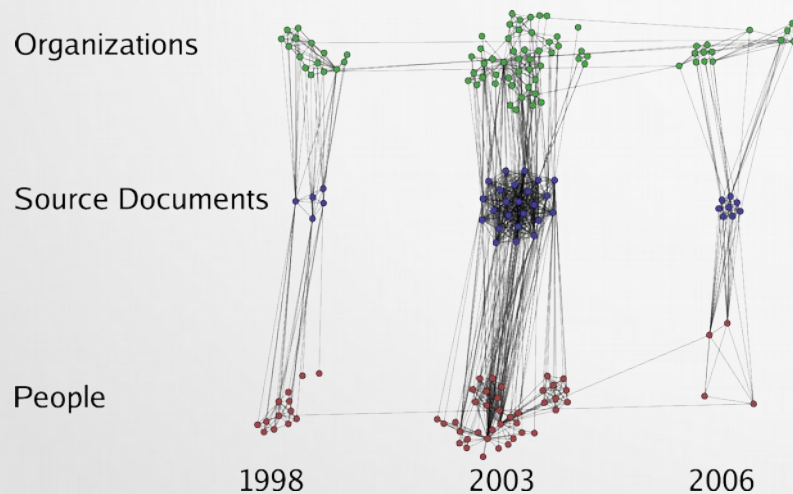
Who's involved?

- **Université de Bordeaux – LaBRI**
 - Visual analytics experts (network analysis, dynamic graph, evaluation)
- **EISTI** (École internationale des sciences du traitement de l'information)
 - Information visualization (hybrid visualization, evaluation)
- **LIST** (Luxembourg Institute of Science and Technology)
 - Life sciences experts
 - Information visualization (evaluation, design)
- **CVCE** (Centre Virtuel de la Connaissance sur l'Europe) – Digital cultural heritage experts
 - Luxembourg-based public organization which contributes to a deeper understanding of the European integration process from a historical, legal, political and economic perspective.

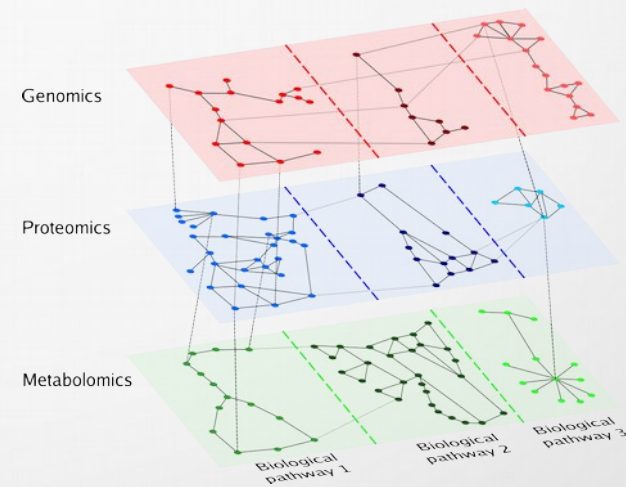


Application domains

- Digital Cultural Heritage.
 - ✓ Collection, preservation, analysis and provision of open access to digitized cultural heritage objects, which may be any man-made object throughout history.
 - ✓ CVCE is developing a dedicated digital research infrastructure on European integration.
- Life Sciences.
 - ✓ Improvements in quality of practical experimental techniques has produced vast amounts of biological data. One dataset is often associated to different fields of study (« omics ») and they hardly work in isolation.



A small subset of CVCE data



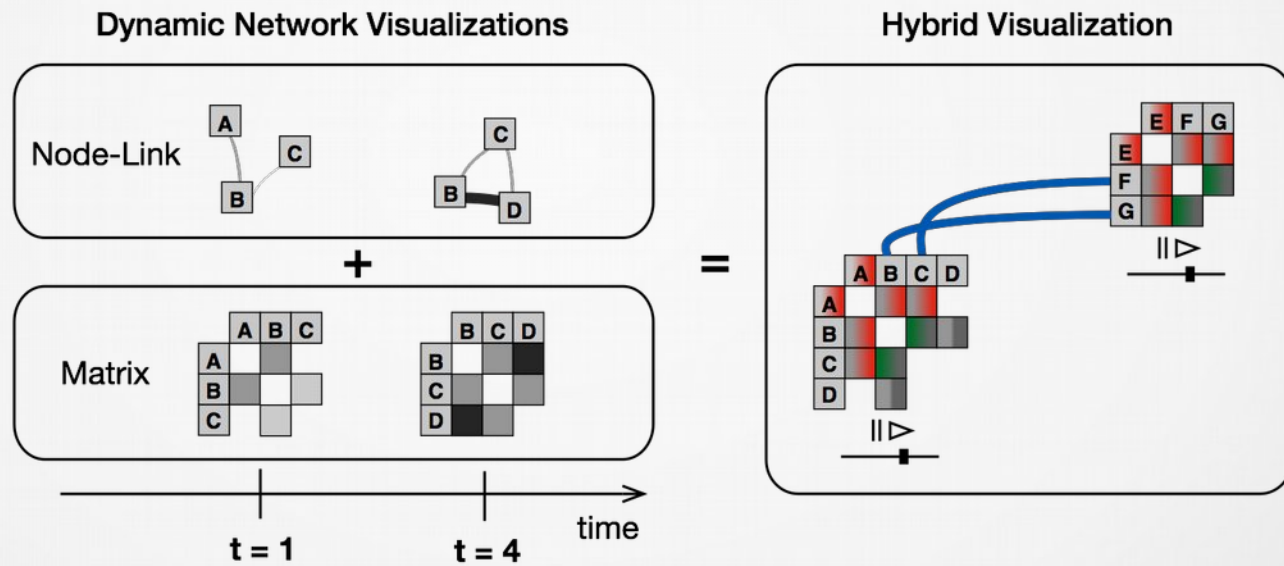
A multilayer network in life sciences

Expected outcomes

Iterative process: mapping the problems of application domain expert users to multilayer dynamic network abstractions, then to interactive hybrid visualizations steered by domain experts.

- 1) Exploring and classifying homogeneous and hybrid approaches to visualize dynamic multilayer networks,
- 2) Designing novel interactive prototypes to explore some of these visualizations, and
- 3) Evaluating these approaches in practice using case studies and user evaluations in the domains of digital cultural heritage and life sciences.

Hybrid Visualization



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