



# Rensselaer

- Name of Organization(s)
  - Rensselaer Polytechnic Institute
- Lead Investigators
  - Profs. Mohammed J. Zaki, Malik Magdon-Ismael
- Current Team Members
  - Co-PIs: Profs. Mark Goldberg, William A. Wallace
  - PhD Students: Mykola Hayvanovich, Cindy Hui, Stephen Kelley, Konstantin Mertsalov, Hilmi Yildirim



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## Research Areas of Interest

- Advanced analytic algorithms for massive and complex graphs
  - Group/coalition discovery and evolution
  - Spread of influence and infectious ideas
  - Subgraph pattern mining and sampling
  - Graph clustering and classification
  - Graph databases: management and indexing
- Semantic learning and reasoning
  - Graph data and model alignment (merging/changing ontologies)
  - Rapid reasoning, reachability, enrichment and clustering over large semantic graphs



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## Unique qualifications and capabilities

- Expertise in data mining, knowledge discovery, machine learning, graph theory and statistics
- Dealing with massive datasets
- Focus on large complex graphs from social network analysis to biological networks
- Dealing with dynamic evolving data
- Reasoning and learning over semantic graphs
- Proven record of developing open source software
  - BlackBook integration (group discovery/meta-ontology)
  - Data Mining Template Library ([dmtl.sourceforge.net](http://dmtl.sourceforge.net)) adopted by around 5000 users from all over the world



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- Capabilities sought:
  - Expertise in robust prototype development
  - Expertise in information integration from heterogeneous sources
    - Entity extraction
    - Building large/complex graphs and ontologies
  - Expertise in large graph/information visualization
  - Data access and communication with analysts



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## Contact Information

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