



# Formal Language Driven Data Analysis Research Group Report

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# Projects Status

## Graph analysis

- ✓ Interprocedural graph for symbolic execution engine
  - ⚙ Advice on graph-based declarative code analysis techniques
  - ⚙ Dataset for path querying algorithms evaluation
  - ⚙ Evaluation of graph querying algorithms
  - ⚙ Submission to GRADES-NDA 2023 (at SIGMOD)
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## Linear algebra

- ✓ Implementation of basic graph analysis algorithms
  - ⚙ Performance tuning
  - ⚙ Submission to GrAPL 2023 (at IPDPS)
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## Parsing algorithms

- ✓ Overview of modern parsing technique
- ⚙ Precise error recovery algorithm for generalized LL

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  - ✓ Participating in discussions on graph database utilization for code analysis
  - ✓ Collaboration with Dmitriy Ivanov and Evgeniy Koshkin on graph-based code analysis engines
  - ⚙ Overview of graph-based declarative code analysis techniques

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- ⚙️ Dataset for path querying algorithms evaluation
  - ▶ Static code analysis cases
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  - ▶ Both static code analysis cases and general cases
  - ▶ Both problem specific and generic algorithms

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- ⚙ Submission to GRADES-NDA 2023 (at SIGMOD)
  - ▶ Context-free path querying for Neo4j
  - ▶ Dataset and evaluation results



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  - ▶ Incremental

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- ⌚ Linear algebra based algorithms for graph analysis implementation and evaluation
  - ▶ GPGPU utilization