Neo4j
Graph Data Science

# Graph Analytics and Graph-Native ML at Scale

Connected data is powerful, but traditional approaches to data make it impossible to understand and use those connections. The bigger your dataset, the more difficult it is to know where to even get started.

Neo4j Graph Data Science uses connections within your big data to answer questions critical to your business. Scalable and performant, Neo4j Graph Data Science empowers you to unlock hidden insights in your data to make better predictions and accelerate innovation.
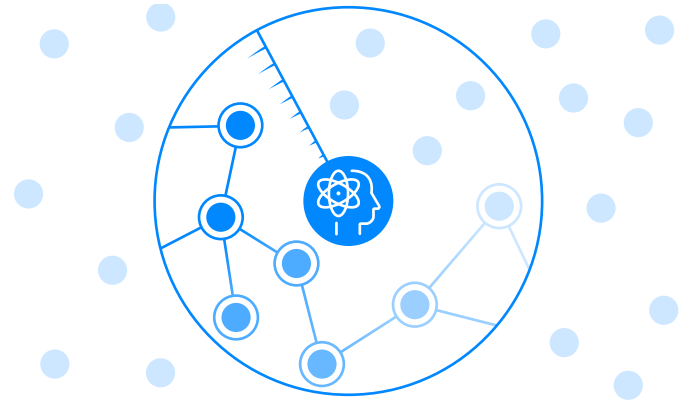
## What Is Neo4j Graph Data Science?
Neo4j Graph Data Science is a graph analytics and modeling platform. Using graph algorithms and machine learning (ML), data scientists identify patterns and behaviors to improve their models for use across recommendation engines, fraud detection, route optimization, customer 360, and much more.

## The First Enterprise Framework for Graph Data Science
Neo4j Graph Data Science delivers the most advanced, integrated framework available today, enabling enterprises to easily implement the latest connected data techniques to extract insights, train ML models, and deploy projects in production.

**Easy to Use**
- Automated MLOps
- Deploy fully managed in the cloud, or self-hosted
- Use cloud commitments to fund investment
- Extensions and APIs

*"Providing relevant content to online users, even those who don't authenticate, is essential to our business. We use Neo4j graph algorithms to transform billions of page views into millions of pseudonymous identifiers with rich browsing profiles. Instead of 'advertising in the dark,' we now better understand our customers which translates into significant revenue gains and better-served consumers."*

*Ben Squire, Senior Data Scientist*
*Meredith Corporation*

**By Data Scientists, for Data Scientists**
- Native Python client
- 65+ pretuned graph algorithms
- Easily integrate graph data science with your ML pipelines
- Unified graph data science workspace and database
- Single API for load, analysis, and writeback

**Enterprise Ready, Enterprise Fit**
- Run algorithms on 3TB of data in less than 3 minutes
- Scale to hundreds of billions of nodes & relationships
- Works with your data pipeline and your favorite tools
- Connectors for Apache Spark, Apache Kafka, and popular BI tools

## Production-Ready Analytics Workspace and Graph Algorithms

Neo4j Graph Data Science offers 65+ pre-tuned, ready-to-run graph algorithms across popular categories:

- Community detection algorithms cluster your graph based on relationships to find communities where members have more significant interactions. Detecting communities helps predict similar behavior, find duplicate entities, or prepare data for other analyses.

- Centrality algorithms reveal which nodes are important based on graph topology. They identify influential nodes based on their position in the network and are used to infer group dynamics such as credibility, rippling vulnerability, and bridges between groups.

- Similarity algorithms employ set comparisons to score how alike individual nodes are based on their neighbors or properties. This approach is used in applications such as personalized recommendations and developing categorical hierarchies.

- Pathfinding algorithms find the most efficient or shortest paths between nodes. Use them to analyze complex dependencies and evaluate routes for uses such as physical logistics and least-cost call or IP routing.

- Node embedding algorithms transform the topology and features of your graph into fixed-length vectors that represent each node. They capture the complexity and structure of a graph and transform it for use in various ML tasks.

- Graph-native ML techniques like link prediction and node classification fill in the blanks in your data

and predict changes in the structure of your graph. They enable use cases such as fraud detection, drug discovery, entity resolution, and more.

## Run Neo4j Graph Data Science Anywhere

Neo4j Graph Data Science can be deployed on-premises or self-managed in the cloud of your choice. For teams who want the ease of a fully managed graph data science offering, Neo4j AuraDS is available on Google Cloud Platform.

Neo4j also offers a Community Edition that is suitable for POCs, researchers, and more. All of these offerings include 65+ graph algorithms, graph embeddings, and ML models, as well as the Pregel API for writing your own algorithms.

Neo4j Graph Data Science Enterprise Edition and Neo4j AuraDS both offer a low-memory analytics graph format that compresses the in-memory graph by up to 75% for faster results. Teams of data scientists can compare model results and work collaboratively with an unlimited number of ML models that can be stored, published, and shared between database users.

Learn more about Neo4j Graph Data Science at neo4j.com/graph-data-science or sign up for AuraDS and get started right away!

Questions about Neo4j? Contact us around the globe:

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neo4j.com/contact-us