GeoLime
The Python library for modeling geoscientists

Boost your resource estimation workflows with the power of Python

GeoLime is a commercial package designed for fast and reliable resource modeling workflows, from exploration to grade control. Based on Python scripting language, GeoLime can be used as a standalone solution but also seamlessly integrates with other platforms, bringing all the flexibility and tools geo-data-scientists need to design powerful solutions.

Key Benefits

- Full workflow from drillhole database validation to block model reporting
- Interactive visualization for EDA and model QC
- High customization and automation capabilities
- Seamless cloud deployment
- Seamless integration with third-party applications

GeoLime is the essential toolbox for geological modeling and resource estimation workflows.

State-of-the-Art Technology

Developed with world-class geostatistical experts, GeoLime provides cutting-edge algorithms and functionalities to the mining industry. It has been successfully benchmarked to other commercial packages, ensuring the best results and performance.

GeoLime is constantly enriched with innovative methods resulting from active research, making it a growing industrial project.

Interoperability

GeoLime seamlessly integrates with other software solutions and databases to design fit-for-purpose platforms, increasing efficiency at all levels.

GeoLime also leverages the Python ecosystem and stirs in a wide range of Python libraries such as Numpy, Pandas, Matplotlib, Folium, PyVista, SciPy and all others, empowering geoscientists with all the tools to build, maintain and upgrade the custom workflows they need.

Performance, Automation & Scalability

GeoLime is by design made to handle extra-large datasets of hundreds of millions of cells and batch computing.

The library is fully parallelized and optimized for both desktop computing and clusters. Its automation and cloud computing capabilities allow the processing of large series of models and the launch of hundreds of realizations in parallel, providing results in record time.

Easy Access & Great Support

No license server required, simple installation through PIP.

GeoLime is supported by a team of expert consultants always ready to help with GeoLime use and custom developments.

GeoLime is used as the backbone of full-scale automated resource modelling workflows from drillhole data validation to pit valuation, bringing the modelling time from weeks to hours. Our clients can update their entire mineral inventory at any given time overnight in a safe, auditable and standardised way.

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Technical Features

Data Preparation & Validation

- Native management of drillholes, points, polygons, surfaces, solids, block models
- Data QC, cleaning and validation tools
- Data filtering, desurveying, declustering, compositing
- Interactive 3D, cross-section and map viewers
- EDA plots: multi-histograms, scatter-plots, variograms, correlation matrix, etc.
- Anamorphosis, Principal Component Analysis (PCA)
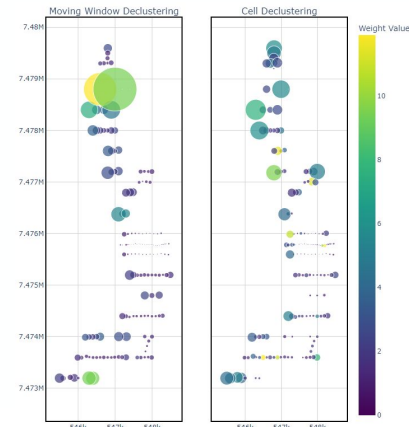
Geological Model Building

- Domaining
- Surface model building from drillholes
- Block model building
- Geometrical operations using surfaces and solids
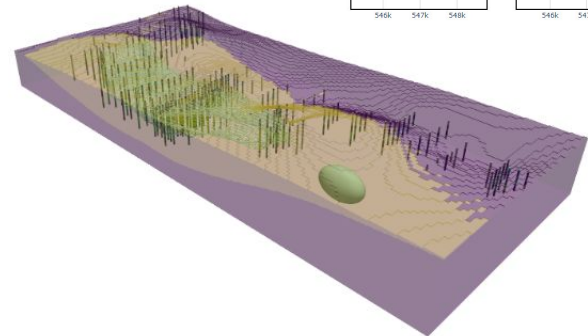
Geostatistics

- Variography and automatic fitting
- Simple and Ordinary Kriging (SK/OK)
- Block Kriging
- Inverse Distance Weighting (IDW)
- Multi-Gaussian Kriging (MGK)
- Uniform Conditioning (UC) and Localized Uniform Conditioning (LUC)
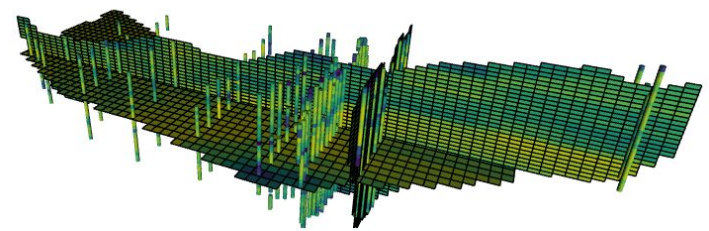- Sequential Gaussian Simulation (SGS)
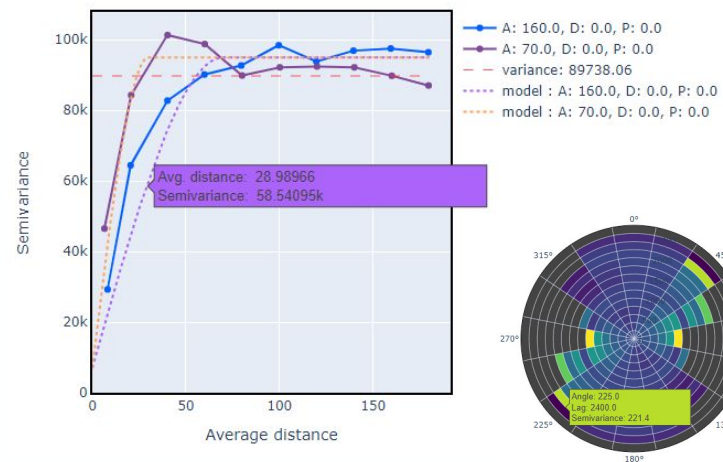
Uncertainty Modeling

- Sensitivity analysis
- Uncertainty quantification & derisking

Reporting

- Interactive and customizable dashboards
- 1D, 2D (map, x-section), 3D viewers
- Correlation matrix, swath plots, grade-tonnage curves, variogram plots and maps
- Easy export to third-party applications

Hardware Requirements

- **OS:** Windows, Unix (x86_64, aarch64)
- **Python:** 3.8, 3.9, 3.10
- **Installation:** pip with *.whl files

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