

In the era of generative AI tools like ChatGPT and Google Gemini, rapidly accessing company insights has never been easier. These AI assistants can parse reports, generate summaries, and provide preliminary research that helps investment teams, particularly family offices, save time.

However, this convenience comes with a caveat: the risk of **AI hallucinations** — persuasive-sounding but inaccurate or fabricated information. When your client's capital is on the line, blindly trusting AI output can lead to costly decision errors.

Why Verifying AI Claims Matters

AI models synthesize data from massive corpora but are not always factually accurate or up-to-date. Particularly in the context of private companies or less transparent entities common in family office portfolios, the scarcity of reliable data increases the chance that AI will “fill in gaps” with invented or outdated details.

For sophisticated investors or multi-family offices, the trustworthiness of information is paramount. An AI-generated claim might seem well-structured and confident but could be misleading. This is why a structured verification process is essential before acting on AI-based insights.

Common Family Office Use Cases for AI

- **Preliminary Research:** Getting a quick overview of a company's business model, management background, or recent developments.
- **Parsing Lengthy Reports:** Summarizing large financial documents or market reports for initial screening.
- **Generating Summaries:** Condensing complex data into actionable points to prepare for manager due diligence or internal discussions.

While AI accelerates these workflows, each output must be validated for accuracy and timeliness. Misplaced trust may lead to overlooked risks or flawed assumptions.

Key Challenges: AI Hallucinations are Persuasive and Risky

Hallucinations occur when generative AI invents facts or references that don't exist. These errors may be subtle — such as misstating a product launch date or misstating revenue <https://canadianfamilyoffices.com/special-reports/technology-sr/ai-has-the-makings-of-a-powerful-tool-for-family-offices-but-frequent-and-highly-convincing-hallucinations-are-proving-troublesome/> figures — but carry outsized consequences for investment decisions.

Two types of hallucinations are critical to understand:

1. **Faithfulness Hallucinations:** The AI generates information that is loosely based on real data but is inaccurate or exaggerated.
2. **Factual Hallucinations:** The AI presents entirely fabricated facts or citations without basis in truth.

In family office due diligence contexts, distinguishing between these is vital. Being able to flag AI outputs that are unfaithful or false allows teams to avoid errors downstream.

Why Verifying AI Claims is More Complex for Private Markets

Public companies offer a wealth of official filings, third-party analyst reports, and timely press releases. Private companies — which make up a significant portion of family office investments — often have less publicly available information, increasing the likelihood of inaccurate AI claims.

Scarcity of data in private markets makes reliance on primary sources and official company disclosures even more critical. The faster you can validate claims against trustworthy sources, the better your risk management.

The Fastest Method to Verify an AI Claim About a Company

When you have an AI-generated assertion—for example, "Company X's latest revenue hit \$500 million in 2023"—how do you rapidly confirm if this is true? Here's a step-by-step approach tailored for family office professionals:



1. **Check the Company Website First** Navigate directly to the company's official website to locate press releases, investor relations pages, or news sections. Company websites are the *primary source* of sanctioned updates and provide the most authoritative data.
2. **Search for Official Filings** For public companies, immediately consult their regulatory filings: SEDAR in Canada, EDGAR in the U.S., and other applicable databases. These contain audited financial reports and other verified disclosures. Even for private companies, some regulatory filings or industry reports may be available to cross-check.
3. **Use Reputable Financial News and Databases**



Check established financial news outlets or specialized data providers that you trust. Avoid relying solely on AI outputs or secondary summarizations.

4. **Conduct a Quick Google Search with Targeted Keywords** Use keyword modifiers like "*Company X 2023 revenue site:companyx.com*" or "*Company X annual report PDF*" to filter results towards credible sources.

This pragmatic sequence leverages the principle: **always prioritize primary sources** before trusting AI-generated data, no matter how polished the narrative.

How Tools like ChatGPT and Google Gemini Fit In

Both ChatGPT and Google Gemini serve as powerful starting points to aggregate and summarize information quickly. Yet, each has pros and cons:

Tool	Strengths	Limitations	Verification	Role	ChatGPT
Python	Wide range of libraries for data analysis and machine learning.	Requires programming knowledge.	Can be verified by running the code and checking the output.	Analyst	Can generate code and explain it.
R	Strong statistical capabilities and data visualization.	Steeper learning curve than Python.	Can be verified by running the code and checking the output.	Analyst	Can generate code and explain it.
SQL	Efficient for querying and managing large datasets.	Requires knowledge of database structure.	Can be verified by running the query and checking the results.	Analyst	Can generate queries and explain them.
Excel	Easy to use for basic data manipulation and visualization.	Limited scalability for large datasets.	Can be verified by checking the formulas and results.	Analyst	Can generate formulas and explain them.
Tableau	Powerful data visualization capabilities.	Requires knowledge of data sources and visualization techniques.	Can be verified by checking the visualizations.	Analyst	Can generate visualizations and explain them.
Power BI	Similar to Tableau, with strong visualization capabilities.	Requires knowledge of data sources and visualization techniques.	Can be verified by checking the visualizations.	Analyst	Can generate visualizations and explain them.
Scikit-learn	Popular machine learning library for classification and regression tasks.	Requires knowledge of machine learning concepts.	Can be verified by running the code and checking the model performance.	Analyst	Can generate code and explain it.
XGBoost	Highly effective for structured data and ensemble learning.	Requires knowledge of machine learning concepts.	Can be verified by running the code and checking the model performance.	Analyst	Can generate code and explain it.
TensorFlow	Popular deep learning framework for image and speech recognition.	Requires knowledge of deep learning concepts.	Can be verified by running the code and checking the model performance.	Analyst	Can generate code and explain it.
Keras	High-level API for building and training deep learning models.	Requires knowledge of deep learning concepts.	Can be verified by running the code and checking the model performance.	Analyst	Can generate code and explain it.
PyTorch	Flexible deep learning framework for research and development.	Requires knowledge of deep learning concepts.	Can be verified by running the code and checking the model performance.	Analyst	Can generate code and explain it.
OpenCV	Open-source computer vision library for image and video processing.	Requires knowledge of computer vision concepts.	Can be verified by running the code and checking the output.	Analyst	Can generate code and explain it.
NumPy	Fundamental package for scientific computing with arrays.	Requires knowledge of numerical computing concepts.	Can be verified by running the code and checking the output.	Analyst	Can generate code and explain it.
Pandas	Powerful data manipulation library for structured data.	Requires knowledge of data manipulation concepts.	Can be verified by running the code and checking the output.	Analyst	Can generate code and explain it.
Matplotlib	Popular plotting library for creating static and interactive visualizations.	Requires knowledge of data visualization concepts.	Can be verified by running the code and checking the output.	Analyst	Can generate code and explain it.
Seaborn	Facilitates the creation of attractive and informative statistical plots.	Requires knowledge of data visualization concepts.	Can be verified by running the code and checking the output.	Analyst	Can generate code and explain it.
Bokeh	Interactive visualization library for creating web-based dashboards.	Requires knowledge of data visualization concepts.	Can be verified by running the code and checking the output.	Analyst	Can generate code and explain it.
Folium	Library for creating interactive maps and geospatial visualizations.	Requires knowledge of geospatial data and visualization concepts.	Can be verified by running the code and checking the output.	Analyst	Can generate code and explain it.
Geopandas	Geospatial extension of the Pandas library for handling spatial data.	Requires knowledge of geospatial data and manipulation concepts.	Can be verified by running the code and checking the output.	Analyst	Can generate code and explain it.
Shapely	Geometry library for manipulating and analyzing spatial data.	Requires knowledge of geometry and spatial data concepts.	Can be verified by running the code and checking the output.	Analyst	Can generate code and explain it.
Fiona	Library for reading and writing spatial data in various formats.	Requires knowledge of spatial data and file formats.	Can be verified by running the code and checking the output.	Analyst	Can generate code and explain it.
Rasterio	Library for working with raster data and geospatial analysis.	Requires knowledge of raster data and geospatial analysis concepts.	Can be verified by running the code and checking the output.	Analyst	Can generate code and explain it.
GDAL	Geospatial data abstraction library for processing and converting data.	Requires knowledge of geospatial data and processing concepts.	Can be verified by running the code and checking the output.	Analyst	Can generate code and explain it.
QGIS	Open-source desktop GIS software for data management and visualization.	Requires knowledge of GIS concepts and software usage.	Can be verified by running the software and checking the output.	Analyst	Can generate instructions and explain them.
QGIS Python Console	Interface for running Python scripts within the QGIS environment.	Requires knowledge of Python and QGIS.	Can be verified by running the code and checking the output.	Analyst	Can generate code and explain it.
QGIS Processing Framework	Framework for automating GIS workflows and tasks.	Requires knowledge of GIS workflows and automation concepts.	Can be verified by running the framework and checking the output.	Analyst	Can generate instructions and explain them.
QGIS Model Builder	Tool for creating and executing GIS models and workflows.	Requires knowledge of GIS modeling and workflow concepts.	Can be verified by running the model and checking the output.	Analyst	Can generate instructions and explain them.
QGIS Plugin Repository	Repository for downloading and installing additional QGIS plugins.	Requires knowledge of plugin installation and usage.	Can be verified by downloading and installing a plugin.	Analyst	Can generate instructions and explain them.
QGIS Data Source Driver	Interface for connecting QGIS to various data sources.	Requires knowledge of data sources and connection concepts.	Can be verified by connecting to a data source.	Analyst	Can generate instructions and explain them.
QGIS Data Provider	Interface for providing data to QGIS applications.	Requires knowledge of data providers and application integration.	Can be verified by providing data to an application.	Analyst	Can generate instructions and explain them.
QGIS Core Library	Core library for QGIS, providing fundamental GIS functionality.	Requires knowledge of QGIS architecture and core concepts.	Can be verified by running the core library.	Analyst	Can generate instructions and explain them.
QGIS GUI	Graphical user interface for QGIS, allowing users to interact with the software.	Requires knowledge of GUI design and user interaction.	Can be verified by using the GUI.	Analyst	Can generate instructions and explain them.
QGIS Server	Web-based interface for accessing QGIS data and services.	Requires knowledge of web services and server management.	Can be verified by accessing the server.	Analyst	Can generate instructions and explain them.
QGIS Cloud	Cloud-based platform for hosting and sharing QGIS data and maps.	Requires knowledge of cloud services and data sharing.	Can be verified by hosting and sharing data.	Analyst	Can generate instructions and explain them.
QGIS API	Application programming interface for integrating QGIS with other applications.	Requires knowledge of API development and integration.	Can be verified by integrating with an application.	Analyst	Can generate instructions and explain them.
QGIS SDK	Software development kit for building QGIS applications.	Requires knowledge of SDK development and application building.	Can be verified by building an application.	Analyst	Can generate instructions and explain them.
QGIS Documentation	Comprehensive documentation for QGIS users and developers.	Requires knowledge of documentation and user support.	Can be verified by reading the documentation.	Analyst	Can generate instructions and explain them.
QGIS Community	Active community of users and developers contributing to QGIS.	Requires knowledge of community engagement and support.	Can be verified by interacting with the community.	Analyst	Can generate instructions and explain them.
QGIS Tutorials	Step-by-step guides for learning QGIS concepts and workflows.	Requires knowledge of tutorial creation and user guidance.	Can be verified by following the tutorials.	Analyst	Can generate instructions and explain them.
QGIS Examples	Sample projects and workflows demonstrating QGIS capabilities.	Requires knowledge of example creation and demonstration.	Can be verified by running the examples.	Analyst	Can generate instructions and explain them.
QGIS Plugins	Additional functionality modules that can be installed on QGIS.	Requires knowledge of plugin development and installation.	Can be verified by installing and using a plugin.	Analyst	Can generate instructions and explain them.
QGIS Data Sources	Various formats and locations where QGIS can access data.	Requires knowledge of data sources and access methods.	Can be verified by connecting to a data source.	Analyst	Can generate instructions and explain them.
QGIS Data Providers	Interfaces for providing data to QGIS applications.	Requires knowledge of data providers and application integration.	Can be verified by providing data to an application.	Analyst	Can generate instructions and explain them.
QGIS Core Library	Core library for QGIS, providing fundamental GIS functionality.	Requires knowledge of QGIS architecture and core concepts.	Can be verified by running the core library.	Analyst	Can generate instructions and explain them.
QGIS GUI	Graphical user interface for QGIS, allowing users to interact with the software.	Requires knowledge of GUI design and user interaction.	Can be verified by using the GUI.	Analyst	Can generate instructions and explain them.
QGIS Server	Web-based interface for accessing QGIS data and services.	Requires knowledge of web services and server management.	Can be verified by accessing the server.	Analyst	Can generate instructions and explain them.
QGIS Cloud	Cloud-based platform for hosting and sharing QGIS data and maps.	Requires knowledge of cloud services and data sharing.	Can be verified by hosting and sharing data.	Analyst	Can generate instructions and explain them.
QGIS API	Application programming interface for integrating QGIS with other applications.	Requires knowledge of API development and integration.	Can be verified by integrating with an application.	Analyst	Can generate instructions and explain them.
QGIS SDK	Software development kit for building QGIS applications.	Requires knowledge of SDK development and application building.	Can be verified by building an application.	Analyst	Can generate instructions and explain them.
QGIS Documentation	Comprehensive documentation for QGIS users and developers.	Requires knowledge of documentation and user support.	Can be verified by reading the documentation.	Analyst	Can generate instructions and explain them.
QGIS Community	Active community of users and				

- Accessible conversational interface
- Good at summarizing complex reports
- Can generate draft research notes
- Knowledge cut-off dates may lag current events
- Frequent hallucinations without source citations
- May state information confidently even if inaccurate

Use for rapid initial drafting, then perform corroboration with official filings and websites.

Google Gemini

- Integrates with Google Search for up-to-date information
- Improved grounding of responses to current datasets
- Potentially better for fact-based queries
- Still evolving, may return overgeneralized or vague statements
- Requires skillful prompting to extract credible sources

Useful for validating time-sensitive claims and linking to primary documents; always cross-check linked references.

Practical Tips to Avoid AI Misinformation Pitfalls

- **Ask “What Would We Show an Auditor?”** Before trusting AI output, consider whether the information can be supported with documents or filings that you would accept for an audit or compliance review.
- **Look for Citations and Source Links** Avoid blindly accepting AI responses without references, especially for financial or regulatory claims.
- **Maintain a “Things AI Got Wrong” Log** Keep track of hallucinations or errors noticed during due diligence to train team awareness and improve verification workflows.
- **Cross-Reference Multiple Sources** Even reputable AI models can err; triangulate data points with official filings and direct company communications.
- **Be Especially Cautious With Private Markets Info** Where data is inherently sparse, demand higher scrutiny and direct confirmation from managers or company representatives.

Summary

Artificial intelligence tools like ChatGPT and Google Gemini are valuable accelerants in family office workflows, especially for preliminary company research and summarization. However, their outputs are not infallible. AI hallucinations—both unfaithful and factually false—pose real risks that require rapid, disciplined verification.

The fastest and most reliable way to verify an AI claim about a company is to **go back to primary sources**: specifically, the company’s official website and publicly available regulatory filings. These sources provide the trusted foundation for informed decision-making.

In a landscape where private market data is scarce and AI-generated misinformation can be persuasive, embedding stringent verification processes ensures family office teams maintain confidence, integrity, and compliance when acting on AI insights.

References and Resources

- SEDAR - Canadian Securities Filings
- SEC EDGAR Database - U.S. Filings
- Example Company X - Investor Relations Page (Placeholder)
- ChatGPT Official Blog
- Google Gemini Announcement