Jul 5, 2026

Mining for Literal Gold

Summary

The session focused on using artificial intelligence tools to analyze geological data for potential gold mining site assessment.

AI Assisted Geological Analysis
Software tools were used to extract map layers and generate scripts for mining data assessment. This approach successfully simplified complex machine learning pipelines for faster visualization of geological anomalies.

Exploring Gold Potential Data
Technical analysis identified potential orogenic gold indicators via geochemical and geophysical data processing. The model evaluated factors including soil data and fault proximity to establish probability maps highlighting interest.

Verification Of Land Features
Participants reviewed high resolution satellite imagery alongside groundwater data to verify specific land features. Integration of spatial data with AI tools provides significant efficiency compared to manual processing methods.

Decisions

Aligned

- **Machine learning pipeline adoption** The team agreed to utilize a machine learning pipeline to analyze geological parameters and generate a new gold prospectivity data layer for the tenement.

- **Comprehensive data integration strategy** The analysis strategy is set to incorporate all relevant, available geospatial and geological data to improve the accuracy of prospectivity modeling.

We've **updated the Decisions section** using your feedback.

Let us know what you think: Helpful or Not Helpful

Next steps

- ☐ [Timothy Beevor] Send Data Folder: Provide the folder containing mining, geology, and GIS analysis files to Bruce for further review.
- ☐ [Bruce] Review Analysis: Examine the shared digital folder and investigate the mining and geological findings to better understand the property prospects.
- ☐ [Timothy Beevor] Present Additional Data: Demonstrate the alternate map and data visualization during the next meeting.
- ☐ [Bruce] Collect Data Folder: Obtain the complete data folder from Timothy for further review.
- ☐ [Bruce] Configure Server: Initiate the server and utilize the Cursor program to inspect the provided files according to instructions.

Details

- **Introduction and Project Setup**: Timothy Beevor introduces their plan to use the Cursor tool to analyze a folder containing Bruce's mining and geological documents, aiming to assess the potential of a gold mining site (00:00:01). The goal is to use the AI to act as a geologist, build a geographic information system application to visualize regional data, and write a report on the findings (00:01:12).
- **AI Tool Usage and Initial Analysis**: Timothy Beevor demonstrates how Cursor reads the provided documents, extracts text, identifies relevant geography, and automatically generates scripts to pull data from external

APIs (00:01:12). They explain that while a previous attempt involved creating a complex machine learning pipeline, they have simplified the process for this demonstration to save time (00:05:35).

- **Exploration Environment and Economic Reality**: Bruce discusses the economic frustrations of having mining companies on their land, noting that they receive limited compensation, specifically five thousand dollars upon signing, despite significant negotiation efforts and ongoing farm disruptions. Timothy Beevor and Bruce discuss the strategy of hoping gold is discovered on their property rather than on adjacent land to improve their negotiating power for a potential mining license (00:05:35) (00:09:12).
- **Technical Analysis and Data Processing**: Timothy Beevor explains the technical process of using Python scripts to extract map layers from Geoscience Australia (00:07:03) (00:11:30). The analysis identifies key indicators, including soil geocchemistry and structural controls, and notes that a twenty parts per billion gold anomaly may be a potential indicator of orogenic gold (00:13:03).
- **Verification of Property Boundaries**: Bruce and Timothy Beevor attempt to align the generated map data with the actual property, known as "Mirinbar," and note discrepancies with external maps regarding the property name (00:13:03). They identify specific fault lines and verify that the generated application is running on a local server port (00:14:41).
- **Map Customization and Geographic Orientation**: Timothy Beevor adjusts the map display to include road details to help Bruce orient the data (00:20:40). They explore specific map layers, such as magnetics and gravity, and Bruce confirms the general location of the tenement, exploration license EL 8571 (00:22:10).
- **Defining Future Machine Learning Objectives**: Bruce asks about the probability of finding minerals on the property. Timothy Beevor initiates a new request for the AI to research existing data and identify potential proxy methods to build a machine learning pipeline that assigns a probability of finding gold across the tenement (00:23:40).
- **Lifestyle Aspirations and Energy Independence**: The conversation shifts to lifestyle, with Timothy Beevor discussing the desire to live off-grid in the future, utilizing solar power and electric vehicles to achieve energy independence. Bruce agrees on the value of being self-sufficient in remote areas (00:27:48).

- **Regional Exploration and Travel Anecdotes**: Bruce mentions that another company, Earth AI, is conducting exploration activities on adjacent land (00:28:51). Timothy Beevor shares a personal anecdote about a previous road trip across Australia, specifically referencing travel through Port Augusta, Broken Hill, and toward the Gold Coast (00:30:24).
- **Mapping Data and Anomaly Identification**: Timothy Beevor continues to refine the technical analysis, noting that there is currently insufficient label drilling data available for the induced polarization chargeability and magnetics layers (00:31:37). They troubleshoot the local server connection to ensure the map visualizations remain accessible (00:33:56).
- **Machine Learning Model Interpretation**: Timothy Beevor provides an interpretation of the generated probability map, explaining that the model evaluates various factors such as soil data, drill hole proximity, fault proximity, and gold occurrences to highlight areas of interest. Bruce expresses interest in integrating satellite imagery for better ground-level visualization (00:37:53).
- **Property Overview and Manual Data Labor**: Bruce describes the farm property, which spans roughly forty-four million five hundred acres and is used for cattle, sheep, and various crops. Timothy Beevor emphasizes how the AI tool saves significant time compared to the manual process of collecting, cropping, and projecting geospatial data (00:40:38).
- **Geospatial Data and Projection Standards**: Timothy Beevor discusses the complexities of coordinate projections and historical geodetic datum standards, such as GDA 94, reflecting on the difficulties of academic training in this field (00:42:51).
- **AI Tool Performance and Data Center Myths**: Timothy Beevor praises the efficiency and affordability of the Cursor tool compared to previous experiences with other coding platforms (00:44:53). They briefly discuss data centers, with Timothy Beevor dismissing the myth that data centers consume excessive water, citing modern closed-loop cooling systems (00:46:55).
- **Starlink and Telecommunications**: The discussion touches on the future of telecommunications, with Timothy Beevor noting plans for Starlink to provide direct satellite-to-phone services, potentially bypassing traditional network providers to offer coverage in remote locations (00:46:55).

- **Troubleshooting and Debugging the AI Analysis**: Timothy Beevor encounters a bug while running the Python analysis, which is successfully resolved by having the AI agent test and fix its own code (00:47:55).
- **Broader Exploration Context and Gold Prospecting**: Timothy Beevor discusses experiences looking for gold in Kalgoorlie and Victoria, noting that obvious surface sites are heavily prospected, requiring more advanced methods (00:50:04). Bruce shares an anecdote about a relative who used wire between rocks to find gold in the Christmas Hills (00:53:26).
- **Final Mapping and Location Verification**: The meeting concludes with a final review of the generated map, where Bruce identifies key landmarks such as the stock reserve and the homestead to verify the accuracy of the displayed spatial data (00:56:19).
- **Satellite Imaging and Mining Site Analysis**: Timothy Beevor and Bruce reviewed a high-resolution satellite map to identify land features and an air strip. They located existing drill holes on neighboring properties, which Bruce noted are a source of current renegotiation efforts, as the mining companies are required to buy out the landholders. Bruce pointed out specific areas on the map where they had previously observed drilling activity and discussed the presence of groundwater, noting that while some areas showed potential for clean water, others on their property contained salty water.
- **Mining Industry Business Practices**: Timothy Beevor and Bruce discussed the business strategies of mining companies, expressing skepticism about firms that appear to prioritize stock market performance over genuine discovery. Timothy Beevor noted that companies often raise funds by reporting drill results without achieving sustained success, occasionally selling findings if they hit valuable resources. Regarding their specific project, Timothy Beevor stated that it has a strong geochemical and geophysical footprint in a proven mining belt, but that current grades remain subeconomic, typically falling between 0.3 and 0.6 over wide intervals.
- **Geospatial Data and AI Integration**: Timothy Beevor described the utility of integrating artificial intelligence into Geographic Information Systems (GIS) and map surfaces. Previously, Timothy Beevor developed an AI geologist that could analyze geological layers and perform calculations based on natural language queries, allowing for sophisticated interrogation of spatial data. Timothy Beevor noted that while these capabilities are highly effective for analyzing geological data, some of the specific methodologies remain protected intellectual property.

- **Cursor Software and Industry Developments**: Timothy Beevor introduced the Cursor software, claiming that Elon Musk's SpaceX acquired the program for 60 billion. They discussed the rapid pace of model development within the artificial intelligence industry, with Timothy Beevor expressing the belief that current public-facing AI technology trails behind the advancements being achieved in laboratory settings.
- **Personal Vehicle Sales and Autonomous Driving**: Bruce mentioned that Bruce's son recently listed a 1955 model oval window Beetle for sale, which received immediate interest and questions from potential buyers. Additionally, Timothy Beevor shared personal experiences driving a Tesla with self-drive software, noting that the system manages intersection navigation and acceleration more quickly than a human driver. Timothy Beevor emphasized that the software operates with precision, allowing the driver enough time to intervene or take control if a situation requires manual adjustment.
- **Geopolitical Observations and Media Influence**: Bruce and Timothy Beevor discussed the apparent lack of recent media coverage regarding global geopolitical tensions, specifically the Iran war and the conflict between Russia and Ukraine. They interpreted this silence as a potential manipulation of the narrative. Timothy Beevor noted that Ukraine recently damaged a major refinery in Saint Petersburg, and they discussed the subsequent impact on fuel supplies, observing reports that petrol stations in Moscow were empty. Both participants speculated that this lack of reporting might be related to broader economic strategies or a pause in activity awaiting more favorable weather conditions.
- **Water Data Review and Action Items**: Returning to the discussion of geological and water data, Bruce and Timothy Beevor reviewed maps showing groundwater bores. Bruce highlighted a location on Yellow Mountain where high-quality water was identified, contrasting it with unsuccessful drilling attempts on their own property. To facilitate further exploration, Timothy Beevor agreed to provide the full data folder to Bruce. Bruce will then need to start the server and follow the instructions within the Cursor program to view the files, and they agreed to reconnect the following week to continue their progress.

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