Lead with Leapfrog

A collection of stories from consultants making their mark with Leapfrog
We approached leading consultants to find out, in their own words, how Leapfrog enables them to be better geologists and more successful consultants.

The stories you’ll read are from people and businesses who regularly use Leapfrog as part of their consulting toolkit. Some have even built a niche business around their Leapfrog expertise. All consultants share a need to respond quickly to client’s requests and to be able to easily work with a variety of different data sets in complex, often challenging, conditions.

Leapfrog is a key part of their toolkit because it can rapidly build models from complex, varied data and dynamically update as new information comes in. Plus, it provides a solid, visual foundation for making great decisions and for better collaboration and clearer communication.

As the industry strives towards greater efficiencies with digital transformation, the demand for faster data gathering, faster analysis and faster decision making will accelerate, culminating in real time connectivity.

Leapfrog expertise is a highly marketable asset in a competitive consulting world. We hope that reading these stories from our consultant community encourages you to join their knowledgeable ranks as Leapfrog experts.”

NICK FOGARTY
GENERAL MANAGER – MINING & MINERALS
SEEQUENT
Leapfrog solutions

Leapfrog solutions harness innovation to help make working with geological data simpler, more enjoyable and more dynamic. Designed to work collaboratively, our solutions bring teams together throughout the mining lifecycle for better, more timely, decision making.

**LEAPFROG GEO**
The leading solution for 3D geological modelling. Designed specifically for the geologist, this workflow solution includes intuitive and interactive tools for model-building, analysis and superior visualisation.

**LEAPFROG EDGE**
For today’s resource estimation challenges. Leapfrog Edge integrates with Leapfrog Geo for seamless connection to the geological model. Industry standard resource estimation tools are arranged in a streamlined, flexible workflow.

**SEEQUENT CENTRAL**
For the management and optimisation of an organisation’s entire modelling activity. Central is a critical repository and platform that provides in-depth analysis and management of geological data for everyone involved in modelling projects.

**VIEW**
A free web application that allows you to instantly share model views and effectively communicate geological information with all stakeholders, not just Leapfrog users.
The geological modelling process is complex, and if not done properly, can cost thousands in missed opportunity and delay. As a consultant you’re expected to come back with answers quickly, but you also need the time to be sure. Leapfrog’s advanced implicit modelling engine allows you to model rapidly, so you can spend more time analysing to improve decision-making and reduce risk.
I really like the user controls Leapfrog has developed to support their implicit modelling options. There are so many tools at my disposal and I’ve been able to develop great workflows to support different modelling needs.

Every process in Leapfrog is faster. For example, when auditing resource models, Leapfrog enables me to quickly analyse grade trends and visualise spatial relationships between different controlling elements in a project. The distance function tools are unique to Leapfrog and enable me to construct accurate drillhole spacing models to support resource classification and drillhole program design. No other software has this capability built in.

I would describe Leapfrog as the Apple iPhone of modelling software. It doesn’t have many buttons, but it can do so much.

We’ve also recently purchased the new resource estimation Leapfrog Edge, for me its best feature is the seamless integration of geology into the resource estimation workflow.

We can do a lot more and package a better product using the advanced functionality of Leapfrog.

Leapfrog allows RPA to serve our clients better. We can build a much more comprehensive model, consider more relevant parameters, and evaluate potential alternatives in the same time frame it previously took us to build a single explicit model.

This is achieved by Leapfrog’s implicit modelling approach; surfaces are created directly from data with parameters set by the user.
RPA Toronto, TMAC Resources Inc – Hope Bay, Naartok Deposit:

A new lithology model was created incorporating the re-logged breccia, which is an important control on mineralisation. Just about every Leapfrog modelling tool was used including erosions, intrusions, veins, vein systems and refined models.
RPA Toronto, TMAC – Hope Bay, Boston Deposit:
Model depicting structurally complex shear-hosted gold mineralisation. The model made extensive use of the “vein systems” to represent the anastomosing nature of the mineralisation.

RPA Toronto, TMAC – Hope Bay, Doris Mine:
Tightly folded vein hosted mineralisation. By manipulating the “vein reference surface”, a tight fold was modelled and then offset by late cross-cutting faults. Underground mapping helped to determine the continuity, hierarchy and displacement of the faults.
GEORGE SMITH
PRINCIPAL CONSULTANT, GEOMAX
“I can come up with more insights and do things faster and more easily. I’m currently working on an entire district which makes one huge model, in the past this could have taken me a couple of years. The rapidity with which you can come up with a set of relationships and create a model with them is probably the biggest benefit.”

ROBIN SIMPSON
SENIOR CONSULTANT, SRK RUSSIA
“The speed with which we have to give answers makes Leapfrog a very useful tool. I use Leapfrog in many different ways but I think the speed of loading and visualising data is the key advantage, and now we’re beginning to have that same speed advantage in the analysis of data as well.”

GERARD TRIPP
PRINCIPAL CONSULTANT, GERARD TRIPP PHD CONSULTING
“The speed and ability to handle large data sets means you get to see all of the data at once. I recently compiled every piece of grade data for a world class low sulphidation epithermal gold deposit with 25 years’ mining history. The results were stunning and allowed the gold mineralised fault network to be visualised like never before.”

CHRIS GORDON
GEOLOGIST, SPECIALISED GEOLOGICAL MAPPING
“I love that I can test a lot of ideas very quickly. For instance, when I want to model a vein, it’s easy to work through an idea in the 3D space and see where it goes. And because it is so fast, it allows you to focus on other things with the remaining time.”
Dynamic Modelling

WORK SMARTER FOR YOUR CLIENT

Modelling tools can limit your ability to readily integrate the latest data to inform your decision making, leaving you vulnerable to risk. With Leapfrog, it’s easy to keep your models up-to-date with refined interpretations or additional data added at any stage.
As a consultant you’re always striving to meet the client’s needs and deadlines and the faster you can deliver, combined with technical excellence, the happier they are.

With Leapfrog, a high-quality model can be created from new data in a very short time, and there is also the ability to dynamically update models so you don’t need to redo the work from scratch when there are small updates.

Once a project is established and the setup is performed, small incremental updates to data, boundaries and variables take a very short time to add in and update the model. A small addition of data would be detrimental to deadlines outside of Leapfrog. A common request from clients is a quick turn around and update using the previous week’s or even day’s data to aid decision making. Leapfrog makes these urgent updates possible.

Lorraine Gold Mine, Free State, South Africa, Jelani Resources.

Lorraine Gold Mine, Free State, South Africa, Jelani Resources. View looking North-East. Multiple mineralised gold reefs were modelled as part of this project. The small middling between some of these units would have resulted in multiple overlaps and days of editing using traditional 3D geological modelling methods. The offset function in Leapfrog made this task much simpler.

Keith Osburn
CONSULTING GEOLOGIST
SHANGO SOLUTIONS
JOHANNESBURG

Shango Solutions is known for its skills in generating targets for exploration and mining companies. Eight of their thirty strong team of geologists are very competent Leapfrog users. Consulting Geologists, Keith Osburn, has used Leapfrog since 2012.
In the field, the ability to quickly re-model means the results of a drillhole intersection can be used to update the geological model and allow the planning and establishment of the next drillhole within the same day, minimising standing time. Outside Leapfrog, we previously spent a lot of time with the minor, not the major changes, such as adding two new drillholes. It is now a lot easier to perform these incremental updates in Leapfrog.

This was the case with a recent drilling project, where some unexpected structures completely changed the existing geological model and depth of expected intersection. I was able to go to my car and update the model with the new information and plan new drill sites considering the updated interpretation. I was able to peg the next drill site before the drill crew was demobilised from the previous site.

Before Leapfrog, we had to swap between different packages. Now a project can be passed down through the different phases of a project to the different geologists responsible for different aspects.

These aspects consider drillhole planning, conceptual modelling, drillhole updating, geological modelling and finally, resource estimation. This is made even better thanks to the recent introduction of the new resource estimation solution Leapfrog Edge.

Lorraine Gold Mine, Free State, South Africa, Jelani Resources.

View looking North-West. An initial Geological Model was generated of the Geological Formations in which the mineralised gold reefs were hosted. This enabled a comprehensive, mine scale view of structural relationships and allowed the reef meshes to be generated by nesting them within the corresponding Geological Formation.
ORLANDO ROJAS
PRINCIPAL CONSULTANT & DIRECTOR, GEOESTIMA

“Being able to update models dynamically is more efficient as it saves the client having to pay for repeated processes. When you first develop the geological model there’s a time investment but after that updating is very, very short and that’s an important benefit for the client. I also like with Leapfrog Edge that the estimates are dynamically related to the modelling process and that the software keeps everything up to date.”

CHRIS GORDON
GEOLOGIST, SPECIALISED GEOLOGICAL MAPPING

“Leapfrog really shines at the intrinsic modelling. We save a colossal amount of time using Leapfrog for that, and you also get a dynamic model that you can update very easily, so we can easily be brought back to a project at a later date. We’ve been able to sell our services based on what Leapfrog can do.”

PETER OSHUST
PRINCIPAL GEOLOGIST, FORMERLY WOOD, CANADA

“Regular integration of new data into geology models is happening now with Leapfrog Geo and has expanded to block models with Leapfrog Edge. In my previous role as a Consultant, the main output was a long-term resource model suitable to support mining studies. The mining studies were updated as the projects progressed through the stages from preliminary assessment to feasibility and production. While the frequency of model updates may not increase, the speed and ease of integrating new data into the models will improve whenever we work in a Leapfrog project.”
Impressive visualisation
FROM CONCEPT TO COMMUNICATION

Being able to quickly visualise and extract value from data regardless of its type or complexity is essential. Leapfrog’s superior 3D visualisation brings clarity, while intuitive tools allow you to rapidly assess and investigate a variety of datasets. A range of high-quality outputs, including HD quality movies delivers compelling communication for collaboration and buy-in.
For the majority of my career, I’d been a single-software user of one of the industry standard packages, which involved interpreting mainly in a 2D environment as opposed to Leapfrog’s 3D. The quality of the outputs far surpasses anything else, there are no more unnaturally jagged edges to the models as Leapfrog can interpolate surfaces between data points. They are far more geologically relevant, and we’re able to make better informed decisions.

It’s also great to be able to make a Leapfrog movie that shows the process, the client’s drillholes and how the model gets constructed.

In my knowledge, there’s nothing else that can even come close to this sort of visualisation.

Clients are impressed as it beats just sharing a few screen shots in a PowerPoint presentation. When you show a movie, a person who isn’t usually able to think in 3D from a geological point of view, is able to grasp the concepts quite easily. This is extremely useful for clients, especially those who don’t have a technical background.

We realised as a consultancy that we have to be ahead of the game, and Leapfrog is the only way to do geological modelling these days.

The Seequent developers are constantly innovating and thinking about what they can do better. It’s also definitely got us some jobs. We’ve had some clients ask us to come on site and use their data to demonstrate that Leapfrog is the best option for them.
**ANGUS ROWLAND**  
HYDROGEOLOGIST, PITEAU ASSOCIATES  
“Within minutes and hours we need to pull shapes and information into Leapfrog so that we can visualise them in 3D for rapid analysis and assessment and get some answers out the door. Leapfrog has really accelerated that phase of developing understanding and getting a feel for a site.”

**GEORGE SMITH**  
PRINCIPAL CONSULTANT, GEOMAX  
“Leapfrog allows you to wrap your mind around stuff and get visual insights on a grand scale. It’s all the things you can see at once and when you look at them in 3D the spatial relationships are mind boggling the first time you turn it on.”

**GERARD TRIPP**  
PRINCIPAL CONSULTANT, GERARD TRIPP PHD CONSULTING  
“The greatest aspect is taking conventional structural analysis and making it 3D to assess controls on ore shoots and target new drilling. I’ve had much success at this. Also, it’s the ability to compile drillhole, rock chip, soil and stream grade data with all GIS layers and structural models in 3D, as well as incorporating non-structural data sets like multi-element geochemistry.”

**OLIVER JONES**  
DIRECTOR, IMPALA GEOMODELLING  
“A high-quality movie can quickly communicate things like a planned drill program or areas of exploration potential around a mine to a CEO, mine manager or investor in a way that PowerPoint slides can’t.”

**CHRIS GORDON**  
GEOLOGIST, SPECIALISED GEOLOGICAL MAPPING  
“I’ve given clients a 3D geological model with a resource model cutting it, and they were blown away, they’d never seen a geological model like that before.”

**FEDERICO CERNUSCHI**  
ECONOMIC GEOLOGIST & GEOCHEMIST, ECLECTIC ROCK  
“I mainly use Leapfrog as a visualisation tool to compile field geology and geochemical data. I love to integrate handmade cross-sections and maps with assay and spectral down-hole information in the 3D environment. Most clients have Leapfrog but if they don’t it isn’t a problem as I can send them the free viewer. Leapfrog is fantastic at visualising the findings at the reporting stage. I also often make a narrated movie. Being able to easily communicate in 3D is the most powerful aspect of Leapfrog and has been a real game changer to the service I provide.”
Creating a niche

AS A LEAPFROG SPECIALIST

In a competitive global market, adding to your repertoire of skills keeps you nimble and adaptable. Advanced Leapfrog skills are a marketable asset that add value and extend your services, whether that’s upgrading modelling to Leapfrog or helping advance your client’s inhouse skills.
Over the last few years I’ve noticed a huge shift in the way models are being produced, many of the legacy models for large mines or exploration properties are being updated, or completely revisited. New software, in particular Leapfrog, is allowing companies to test new models and interpretations and really get the most out of the data that’s been building up.

In addition, a large number of juniors and mid-tiers have been looking to make models that as well as being detailed and correct, have a high visual quality that can be used to create marketing content, an essential task for all companies looking to raise finance. As a result of all this, I could see a niche for someone with the right skill set.

My work includes visiting mines and exploration projects and building their geological and resource models; bringing existing models up to standard; keeping models routinely updated and improving client’s modelling skills through training and hot desk ing. I work with a broad range of clients from major mining companies to juniors.

I’ve noticed lately that more mid-tier companies are adopting Leapfrog. There is a solid demand for detailed 3D modelling in the industry right now.

My training work ranges from teaching the basics to sitting alongside modellers for several weeks improving skills and teaching them new ways to use Leapfrog. This also extends into teaching broader skills, including how to evaluate and investigate the data to get the most out of it. I find the investigation tools incredibly powerful. I can really dig in and get the most out of the data in a flexible environment. The quality of the outputs is fairly incomparable with the rest of what’s out there, more geologically reasonable and holds more sway.

People definitely want to be able to use Leapfrog more and because it’s intuitive and well made, it’s seen as an essential tool.

Oliver Jones
DIRECTOR
IMPALA GEO MODELLING, UK

Oliver Jones has carved a niche with Leapfrog 3D modelling and interpreting exploration data. He established Impala GeoModelling in 2016 after honing his skills as a Leapfrog modeller for SRK in Cardiff. He’s had ten years in the industry, consulting and working for Junior exploration companies.
Sections of the Tara Pb-Zn Mine 3D model produced by Impala Geo and Boliden Tara Mines, Ireland.

Modelling in a complex faulted sedimentary basin

The final model covered multiple square kilometres of a complex sedimentary basin and was the first 3D model for the mine to incorporate decades of production and exploration data. The complex 3D relationships between sedimentary features and multiple generations of faulting would not have been resolvable without Leapfrog Geo’s excellent visualisation capabilities.
When I started consulting in 2011 I hadn’t set out be just a Leapfrog user. I’d also bought 25 hours of another very popular modelling package, but after six years I still have 17 hours of it left. Now I don’t use anything other than Leapfrog.

Everyone is doing some form of implicit modelling tools in their software but with Leapfrog it’s not just the tool it’s the way it is embedded in the workflow, it is the way the process is undertaking model generation that sets Leapfrog apart.

I like to get new clients to the point where they can see the visualisation and scale advantages of using Leapfrog. Even if we take models that have been created in other packages, load it into Leapfrog with the data and don’t do any new modelling, generally we’ll see things that we haven’t seen before.

I think the real benefits become apparent when Leapfrog’s embedded in the workflow. It’s generally very obvious the places where clients can save a lot of time using Leapfrog and then integrate the outputs with other modelling products.

The focus for me is on geological modelling, the domain development, so geological model development is the approach I take, this then feeds into resource estimation domains. You need to get the geological domains right as everything else is based on it.

Leapfrog has the ability to build in the natural variabilities of the geology into the model very quickly and allows us to develop new insight.”

Australian mining consultant Dale Sims was an early adopter of Leapfrog, buying the third commercial licence sold in 2003 when working for Newmont. He now specialises in Leapfrog training and development, helping clients to establish workflows to integrate and embed Leapfrog on site.
Reserve wireframes in the Swan and Eagle orebodies.
Courtesy of Kirkland Lake Gold Ltd.

The Swan mineralisation with intervals above 30 g/t Au shown as red disks along drillholes.
Courtesy of Kirkland Lake Gold Ltd.
Two steps ahead

LEADING SOFTWARE THAT SETS THE STANDARD

As a consultant, there’s an expectation that you lead the market and are an early adopter of new software and techniques that advance understanding and deliver greater efficiency. Leapfrog’s rapidly evolving solutions are renowned for their groundbreaking features that keep you competitive and at the forefront of innovation.
We needed this innovation. In the last 10 years clients want to get the block model in less and less time. Leapfrog is the tool that can go faster. And at the same time people want better models and more scenarios or interpretations. In the past I had more time for modelling, but now the industry needs a very quick turnaround. Clients want the information from the model to make business decisions and so timing is fundamental.

I’ve also appreciated the introduction of the new resource estimation solution Leapfrog Edge. The biggest benefit is that Edge delivers an intuitive workflow from geological modelling to resource estimation, with the added benefits of Leapfrog’s great visualisation and dynamic updating capabilities. It also allows you to save time exporting and importing files from different software.

The main thing I like about Leapfrog is that the development is constant. Things are changing very fast as they work on improvements and advances. We are able to give feedback and see these improvements appear in the software.

“The most important issue for the Consultant is to be very awake to how the industry is changing. For me Leapfrog is the main innovation in mining software in the last 25 years, it is the only way I can fit with the timing that the client is demanding.”

Leading Chilean consultancy Geoestima’s core business is resource modelling and Leapfrog is their main tool for geological modelling. Their seven consulting geologists all use Leapfrog. Principal Consultant and Director, Orlando Rojas, started using Leapfrog in 2008 and now uses Leapfrog daily.
OLIVER JONES
DIRECTOR, IMPALA GEOMODELLING
“I don’t know of any other mining software that has advanced as much as Leapfrog in the same period of time.”

SEAN HORAN
PRINCIPAL GEOLOGIST, RPA TORONTO
“Leapfrog is one of the few mining packages based on a modern platform, you can tell this by the velocity of updates.”

JOHN STEWART
PRINCIPAL GEOScientIST, GEOKINCERN
“What is good about Leapfrog and what your programmers are doing is that they are good at listening to people and making Leapfrog much more flexible for a variety of end-users.”

ANTON GELDENHUYS
GEOLOGIST, FORMERLY THE MSA GROUP
“Updates are very useful and innovative. The developers are constantly innovating and thinking about what they can do better.”

CHRIS GORDON
GEOLOGIST, SPECIALISED GEOLOGICAL MAPPING
“Updates are good and I’ve actually been able to see things that I’ve requested get implemented.”

KEITH OSBURN
CONSULTING GEOLOGIST, SHANGO SOLUTIONS
“Updates come thick and fast, every couple of months there’s something new. When I worked for South Deep prior to the launch of Geo we made a lot of suggestions and it was great to see them in the product in the following six months or so.”
15 Consultants

15 Reasons to Try Leapfrog

1. “Leapfrog is particularly relevant for Consultants because we’re doing a type of work that many other geologists wouldn’t do, they’d be following a fairly well-established process that runs over months, whereas the variety of data sets we have to work on, and the speed with which we have to give answers, makes Leapfrog a very useful tool.”
   ROBIN SIMPSON
   SRK Russia

2. “I sometimes feel like I’m using the latest iPhone and everyone else is using a Nokia from the 90s.”
   CHRIS GORDON
   Specialised Geological Mapping, Spain

3. “It’s not just the time it frees you to think about the problem, it’s also how it allows you to easily communicate the geological model to clients.”
   JOHN STEWART
   Geokincern, NZ

4. “Leapfrog allows you to wrap your mind around stuff and get visual insights on a grand scale.”
   GEORGE SMITH
   Geomax, US

5. “It has changed the way I consult. That used to be compass and core frame structural measurements and photographs written up in a report. Now there is a full 3D live assessment of the structural, geochemical, geological and grade data, with 3D viewer delivered as well as reports.”
   GERARD TRIPP
   Gerard Tripp PhD Consulting, Australia

6. “We have a library of Leapfrog visualisers and movies that are regularly shown when presenting to new clients to show the possibilities, and the type of model and output we can produce for their project.”
   KEITH OSBURN
   Shango Solutions, South Africa
7. “Seequent is interested in the user’s perspective and are good at helping and listening and being sincere about wanting to progress the issues that users have. This is a really strong aspect of the company, they are a good bunch of people.”

DALE SIMS
Dale Sims Consulting, Australia

8. “I would describe Leapfrog as the Apple iPhone of modelling software. It doesn’t have many buttons, but it can do so much.”

SEAN HORAN
RPA Toronto, Canada

9. “Leapfrog is fantastic at helping clients visualise the findings at the reporting stage.”

FEDERICO CERNUSCHI
Eclectic Rock, Uruguay

10. “Leapfrog is the only way to do geological modelling these days. It’s also definitely got us some jobs. We’ve had some clients ask us to come on site and use their data to demonstrate that Leapfrog is the best option for them.”

ANTON GELDENHUYS
Formerly The MSA Group, South Africa

11. “Competitors have developed ‘implicit’ modelling modules, and some are true RBFs, but no program has come close to matching the functionality of Leapfrog.”

RICHARD ‘TICK’ KNIGHT
Mining Geology Solutions, US

12. “For me Leapfrog is the main innovation in mining software in the last 25 years, it is the only way I can fit with the timing that the client is demanding.”

ORLANDO ROJAS
Geoestima, Chile

13. “Regular integration of new data into geology models is happening now with Leapfrog Geo and has expanded to block models with Leapfrog Edge.”

PETER OSHUST
Formerly Wood, Canada

14. “There is a solid demand for detailed 3D modelling in the industry right now.”

OLIVER JONES
Impala GeoModelling, UK

15. “I very much like how Leapfrog pushes ongoing development to all clients regardless of the type of licence you hold, so you’re always dealing with the best and up to date version of the software.”

ANGUS ROWLAND
Piteau Associates, South Africa
Get licensed with Leapfrog

We offer a variety of different licensing options to suit the way you work. The two most commonly used by consultants are:

01
CONSULTANTS ONDEMAND

For project based Leapfrog use
A dongle-based system, where a consultant can rent a Leapfrog licence when it’s needed for a project, starting from just one day. Usage is invoiced at the end of each month.

Contact us to get started with Consultants OnDemand

02
PAY & GO DAILY LICENSING

For quick start Leapfrog access
A cloud-based system, where a consultant gets access to Leapfrog instantly. The licence is paid for in advance with a credit card, with duration options starting from one day.

Start using Leapfrog today, with Daily Licensing

We also offer annual licence options for individuals and teams. Contact us for a quote.
Leapfrog software is intuitive and easy for new users to learn.

Leapfrog includes comprehensive in-product Help.

Leapfrog Fundamentals courses are 2-3 days in a classroom style if you prefer a more formal training setting.
Seequent is a global leader in the development of visual data science software and collaborative technologies.

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