



In a constantly evolving business world, traditional forecasting tools struggle to keep up with the speed and unpredictability of change. That's why we developed the **Bimodal AI Engine**, an innovation that combines the analytical power of **AutoML** with the adaptive intelligence of **generative AI** to deliver forecasts that are both agile and realistic.

AutoML, the first pillar of our solution, automatically selects the most effective model for each dataset. This process generates forecasts with accuracy validated and supported by recognized metrics such as NRMSE, NMAE, and MAPE, ensuring reliability and robustness.

But that's just the beginning. Through generative AI, we enrich these AutoML-generated forecasts with evolving market data and forward-looking insights from experts. These models don't merely reflect the past; they adjust dynamically to the present moment and anticipate future trends with greater precision.

With the Bimodal AI Engine, we are redefining the standards of predictive analytics. This engine provides decision-makers with not only the precision essential for informed strategic choices but also the agility required to turn every change into an opportunity, thanks to more realistic forecasts.

From the Arzellia Blog



Introduction

Organizations across industries are increasingly recognizing the transformative power of data and the urgent need for more adaptive predictive tools. One of the key challenges observed is the gap between insights derived from historical data and the tools necessary to navigate an ever-changing present. This realization has inspired the development of innovative approaches designed to address these limitations, drawing from lessons learned through past challenges and ongoing dialogue with industry experts and users.

This article explores how Bimodal AI offers a modern solution to achieve more realistic and actionable forecasts.

The Challenge: Predicting in a Rapidly Changing World

In today's fast-paced landscape of intelligent technologies, many efforts are being made to bridge the gap between traditional AI and generative AI. However, these approaches often depend on labor-intensive and highly manual processes, limiting their scalability and efficiency.

By integrating and automating these technologies, it's possible to deliver more accurate and efficient results. This challenge is best exemplified by a conversation with a supply chain director who noted:

"I can anticipate the next season using historical sales data, but what if an unexpected event, like a new trend emerging on social media, suddenly drives demand for a product we

considered secondary? Or if a regulatory change suddenly disrupts our delivery schedules?"

This concrete example highlights the limitations of traditional tools in handling unforeseen variations in inventory management and responding to unprecedented situations.

While traditional AI is essential for identifying trends and establishing benchmarks, it is often constrained by its inertia. It struggles to quickly and effectively integrate the complexity of a world where conditions evolve at lightning speed.

How can we overcome these limitations to detect emerging trends, **anticipate the unpredictable as much as possible**, and seize the opportunities that arise?

The Solution: The Bimodal AI Engine

Our answer lies in a hybrid approach that combines the stability of traditional AI with the adaptability enabled by recent advancements. **AutoML**, bolstered by substantial investments from Microsoft in automating AI processes, has become a powerful tool for generating highly accurate and reliable predictions.

Building on this foundation, the new and recent possibilities offered by **Generative AI** represent the missing piece for achieving better forecasts.

By leveraging generative AI, we envisioned a system where AutoML-generated predictions are dynamically

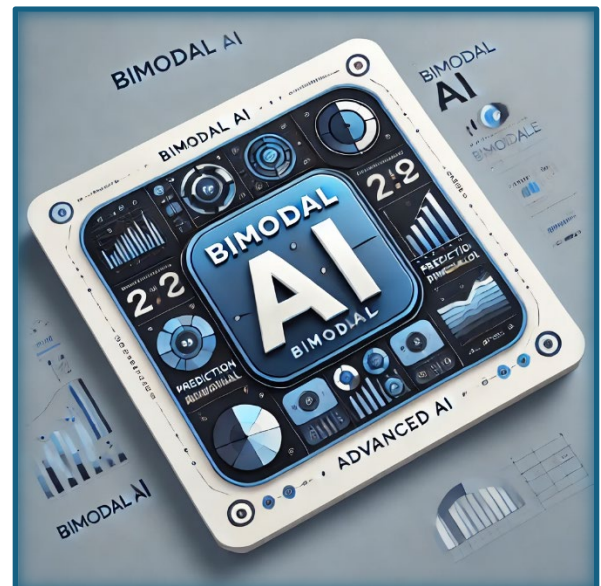
enriched with insights from emerging trends and external data sources that are otherwise impossible to capture manually.

This combination of technologies provides critical flexibility, allowing experts to refine predictions and adapt to new market conditions as they arise, ensuring that decision-making remains both precise and proactive in an ever-changing environment.

Why the Bimodal AI Engine is a Game-Changer

The Bimodal AI Engine goes beyond merely updating historical models; it detects and integrates emerging signals to address unprecedented scenarios.

In our earlier example of the supply chain director, this type of scenario perfectly demonstrates where generative



AI excels.

Using well-designed prompts, it can analyze external data sources such as social media posts, news articles, or regulatory updates to detect weak signals often imperceptible to traditional methods. For instance, generative AI could identify a sudden spike in interest for a specific product triggered by a major influencer or a legislative change. This capability allows businesses to adjust inventory or production strategies proactively before these trends significantly impact the market.

Here are additional examples:

- **Retail:** Generative AI can analyze data from external sources, such as social media or online trends, to detect changes in consumer preferences. For example, if a viral campaign drives sudden demand for a specific product, these signals can help adjust sales forecasts and redirect inventory, avoiding stockouts or overstocking.
- **Supply Chain:** By integrating external data like alerts on logistical disruptions or weather events, generative AI enhances forecasts by considering these unforeseen factors. For instance, it can detect that a storm will impact a key port or that a supplier may miss deadlines, enabling companies to proactively revise their supply chain or production plans.
- **Finance:** Generative AI can analyze near-real-time information flows, such as regulatory announcements, economic reports, or financial market

fluctuations. For example, if a new regulation affects a specific sector, it allows businesses to adjust risk or revenue forecasts, providing better adaptability to changing conditions.

Conclusion

The **Bimodal AI Engine** establishes a new standard in predictive analytics by seamlessly combining the stability of traditional AI, automated through **AutoML**, with the adaptability of **generative AI**. This powerful synergy facilitates the integration of fresh, relevant data, delivering highly accurate and actionable forecasts that align with the fast-paced dynamics of modern markets.

Would you like to discuss how this approach could meet your company's needs?

Feel free to reach out to us at:

[✉ contact@arzellia.com](mailto:contact@arzellia.com)

Or

[🌟 Request a personalized demo of Arzellia to see how it can transform your decision-making.](#)