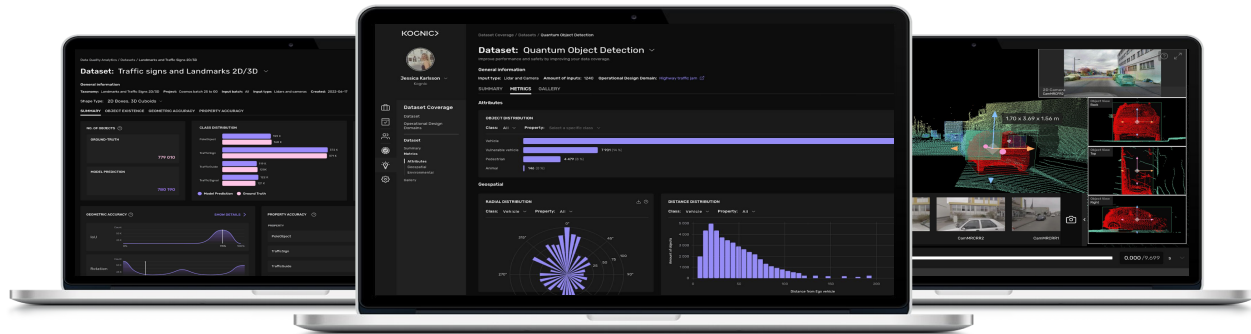


# KOGNIC>

The relentless pursuit of performance and trust.



Kognic's machine learning platform empowers engineers and product teams to develop, test and deploy performance-critical ADAS/AD systems in measurable and cost-efficient ways.

Our software tools, with a powerful annotation engine at its core, are optimized for automotive perception. Need multi-sensor fusion? Hybrid automation? Sequences? Perhaps long-range detection for a L3/L4 highway pilot? What about data quality analytics? Kognic has you covered.

## Kognic **Data Refinement**, an integrated capability.



### > Data Visualization & Data Management

Browse labeled and predicted objects for increased understanding of your dataset state. In-depth statistics and interactive diagrams allow for a systematic approach to data curation. Browse data produced inside the Kognic platform or uploaded from other partners.



### > Powerful filtering

Utilize object filters to query relevant objects with specific classes, properties and sizings. Upload, compare and filter on any metadata parameters. Imagine filtering objects by both size and distance. Do you need to fully quality assure distant objects?



### > Effortless workforce capabilities

Seamless integration of your workforce to our core annotation system can enable - in just a couple clicks - quick updates to the data. Should you want to send any suspicious annotation directly back to the annotators for inspection and fixing; or if you want to try out a new annotation strategy, you have the power to decide when and how.

## Why is **Data Refinement** important?

Historically, the average ground-truth project reveals that at least 30% of budget is spent on correcting the entire batch of processed annotations. This is very inefficient and costly. With Kognic's Dataset Refinement **you only correct what is most beneficial for the model.**

The new **iterative way of working** recognizes that the dataset itself evolves and optimization of the model can benefit from targeted refinement. This optimization gain significantly increases your engineering teams' velocity and allows better focus on the variables that matter most.

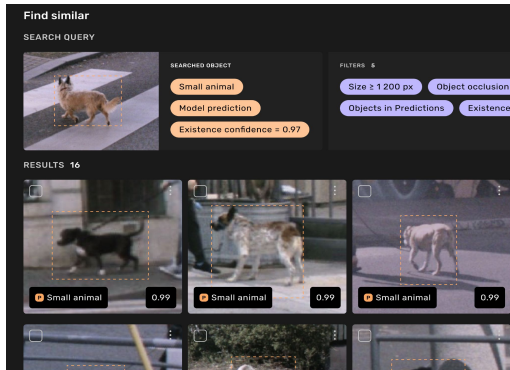
Your teams can **assess and analyse complete batches within minutes** and gain valuable insights on what updates are needed in order to deliver the most positive impact on model performance.



## How does Data Refinement actually work?

### Comparing predictions and annotations

To support the iterative way of working, we introduce the **Prediction Gap Lens™**. This new feature of our Dataset Refinement capability helps narrow the iterative loop by comparing annotations to predictions and allows your team to efficiently browse the results - a critical activity. With its advanced sorting, filtering and searching capabilities, users are able to single out the exact data points they are looking for maximum impact. Designed to address the dynamic reality of large and complex datasets - with millions of items - our **Prediction Gap Lens™** helps align your dataset.

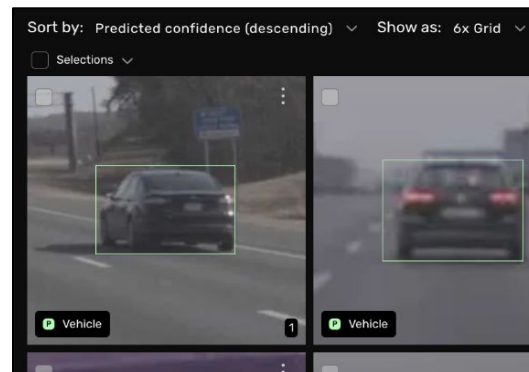


The long tail of rare scenarios is one of the most challenging aspects of perception. When you encounter a relevant but rare object, you can now quickly search for similar objects. This enables a holistic overview that can provide great insight - do you need to change and align the data or just trigger a broad update to your perception system?

Default embeddings are also integrated from foundational models and you can even upload your own embeddings for greater specificity.

With over four years of platform usage and feedback to leverage, we have found this "hunting down" of the differences proves to be doubly valuable; sometimes it is an annotation mistake, while sometimes it is the model itself which needs improvement.

There are also cases where the **Prediction Gap Lens™** has surfaced shortcomings in the initial annotation instructions and glitches in the data management processes. These annotation "guidelines" (as we call them) are the important baseline for any computer vision effort. Closing the iterative loop can reveal a lot!



## Is Data Refinement making a difference for our users?

### > Engineering Team Lead

"...when browsing data with Kognic's new Prediction Gap Lens, we discovered a missing critical factor - the need to update how we handle objects behind windows or inside buildings."

"... we discovered that approximately 80-90% of the objects that were predicted as a "vulnerable vehicle" but not annotated were actually a single object type itself- scooters!"

"...and not only had we found potentially missing objects in the annotations using the new Data Refinement tool, but we also discovered things about our network we didn't previously know."

We'd like to hear from you and trade perspectives. How are your datasets behaving once annotated? Do you see similar challenges in optimizing models after training? Let's talk.

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