IliasAI

Olfactory AI · Digital Nose (e-nose)
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Robots can see, hear and touch.
We give them a sense of smell.

ILias AI builds digital olfaction: a multichannel olfactory sensor array paired with deep learning that recognizes an odor's full chemical **fingerprint**, on the bench and on quadruped robots that patrol, search and detect.

WHY SMELL IS THE MISSING SENSE

Robots and autonomous systems increasingly work where people work, and many of the most dangerous hazards in plants, facilities and public spaces are **invisible to cameras**: toxic gas leaks, chemical releases, contraband. A robot that can smell can detect a hazard, identify what it is, and move toward its source **before people are exposed**. Olfaction is also a largely untapped data modality for multimodal AI.

TECHNOLOGY

- **Multichannel olfactory sensor array + AI deep learning** (not spectroscopic): learns odor fingerprints, not just a single concentration value.
- **Odor library** built on the desktop reference system.
- **Digital olfactory data platform**: patented in Korea.

PRODUCTS

- **Desktop model**: lab reference and odor-library builder. A thin pin-type probe, connected by hose, samples air from **closed boxes through small gaps, without opening them**.
- **Quadruped robot-mounted payload**: compact unit for mobile patrol and gas detection.
- Both work together for **spatial search and gas detection**.

APPLICATIONS BY INDUSTRY

Public safety & security
Narcotics, explosives and toxic gas screening at customs and airports.

Industrial safety & energy
Gas leak detection in chemical plants, battery and chip fabs.

Robotics
Quadruped robot-mounted patrol of hazardous areas.

Mobility & autonomous vehicles
Cabin air quality, and early warning of battery thermal runaway or gas leaks.

Aerospace & space habitats
Cabin air and life-support monitoring in sealed environments.

Smart buildings & data centers
Indoor air, overheating and gas leak monitoring for facilities.

Healthcare & wellness
Breath and odor biomarkers (research stage).

Food & fragrance
Freshness, quality and scent checks for consumer goods.

AI & digital olfaction data
TSM odor data as a new sensory modality for multimodal AI.

* These are areas where our technology can apply; some are at the research or exploration stage.

R&D: 3D ODOR MAPPING FOR ROBOT ACTIVE SEARCH

Mapping the **odor fingerprint in 3D** (not just concentration), with **uncertainty**, to **estimate source location** and steer a robot's active search. First focus: **toxic gas industrial safety**.

CREDENTIALS

- **Korean Patent No. 10-2912639**: "Digital Olfactory Data Service Platform" (registered Jan 9, 2026).
- **Commercialization based on ETRI technology transfer** (Electronics and Telecommunications Research Institute, Korea).
- **Planned olfactory data center** in the Ulsan/Busan region.

THE ASK

A short conversation, and a small pilot of our quadruped robot-mounted digital nose at an industrial site or another facility of your choice.

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