## About Visaltium

Visaltium is at the forefront of creating cutting-edge solutions in Artificial Intelligence and Computer Vision. More than providers, at Visaltium, we consider ourselves strategic partners of our clients, actively engaging in every stage of the projects. Our philosophy goes beyond delivering results: we share goals, progress, code, and most importantly, the knowledge generated, ensuring that our clients can fully leverage the solutions developed and adapt them to future challenges.

Under the leadership of Gerard Tarragó and Albert Fullana, experts in AI and Computer Vision, Visaltium has formed a team of highly qualified developers with experience in innovative projects and cutting-edge technologies. This commitment to excellence and innovation enables us to meet our clients' current needs and prepare them for the advancements that will shape the future of these dynamic fields.

## Team Capabilities

The Visaltium team stands out for its comprehensive expertise across various fields, enabling us to develop innovative and customized solutions for our clients. Below are our main capabilities, organized into two key areas.

### Artificial Intelligence

- Implementation of LLMs for semantic analysis, text generation, development of conversational interfaces, and integration with final solutions.
- Development of advanced solutions using Generative AI techniques for digital content creation, data modeling and simulations.
- Implementation of GANs for tasks such as image generation, visual quality enhancement, and creation of realistic visualizations.
- Use of transformer models for complex analysis and data generation, applied to Natural Language Processing (NLP) and Computer Vision.
- Expertise in cloud platforms like AWS to deploy, scale, and optimize models, integrating them with cloud services, databases, and storage.

### Computer Vision

- Application of traditional techniques and Machine Learning algorithms for image transformations and analysis.
- Design, development, and customization of neural networks, including the creation of new networks, Transfer Learning, and building tailored datasets for specific solutions.
- Utilization of various frameworks to maximize efficiency in the implementation and execution of Deep Learning models.
- Selection, calibration, and optimization of optical hardware for specific lighting conditions and project requirements.
- Integration of cameras and intelligent devices using specialized SDKs.
- Proficiency in programming languages and libraries, both open-source and commercial, adapting to the requirements of each project.
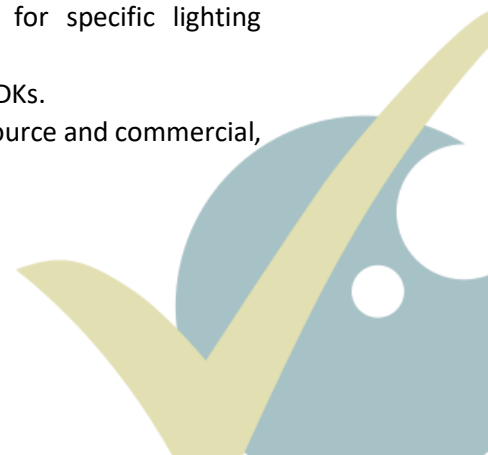
These skills position Visaltium as a strategic partner in the development of advanced AI and Computer Vision solutions, tailored to the specific needs of each client and aimed at generating tangible and sustainable impact.

## Projects

Visaltium has collaborated with companies and entities across various sectors, leading innovative projects. Below are some of the most relevant sectors and projects:

### Industrial Vision

- Development of a system based on deflectometry to identify defects in vehicle paint.
- Inspection software to ensure that vehicles meet client-specified configurations (radiators, lights, chrome elements, etc.).
- Comprehensive vision system to guide a robot in inspecting airplane cabin panels, verifying compliance with specifications.
- Solution for measuring and correcting micrometric deviations in large-format printers in real-time.
- 360-degree Computer Vision system to verify product labels by combining images from multiple cameras to create a 3D reconstruction of the product.
- Glass type detector using RGB cameras and hybrid algorithms of Deep Learning and traditional vision techniques.
- Advanced system for identifying improper materials in paper and cardboard recycling, using RGB and hyperspectral cameras with semantic segmentation.
- Detection and prediction of human actions to prevent collisions in collaborative environments.

### Intelligent Transportation Systems (ITS)

- License plate reading in real conditions.
- Vehicle classification by type and color.
- Real-time traffic light violation analysis.
- 3D scanning of urban scenes.
- Advanced pedestrian detection in urban environments.
- Pavement condition analysis.

### Retail

- Systems to automate access controls, reducing physical contact.
- Smart cameras for queue monitoring in stores to optimize resource allocation.
- Customer analysis to obtain attendance metrics.
- Intelligent scale systems to identify fruits and vegetables in supermarkets.

### Agriculture

- Identification and categorization of fruits in agricultural plantations by variety and quality.
- Crop analysis to forecast the final production of fruits.

### Healthcare

- Classification of bacteria in medical images.

- Monitoring patient movements in remote rehabilitation applications.
- Generation of hyper-realistic images from prenatal ultrasounds.

## Document Management

- Solutions based on LLMs to index large volumes of documents for consultation via a document chat interface.
- Tools for managing and searching specific content in images using LLM technology.

## Other Sectors

- Visual classification for inventories and catalogues.
- Automatic identification of ads during live broadcasts.
- Creation of accurate thermal maps from drone-captured images.