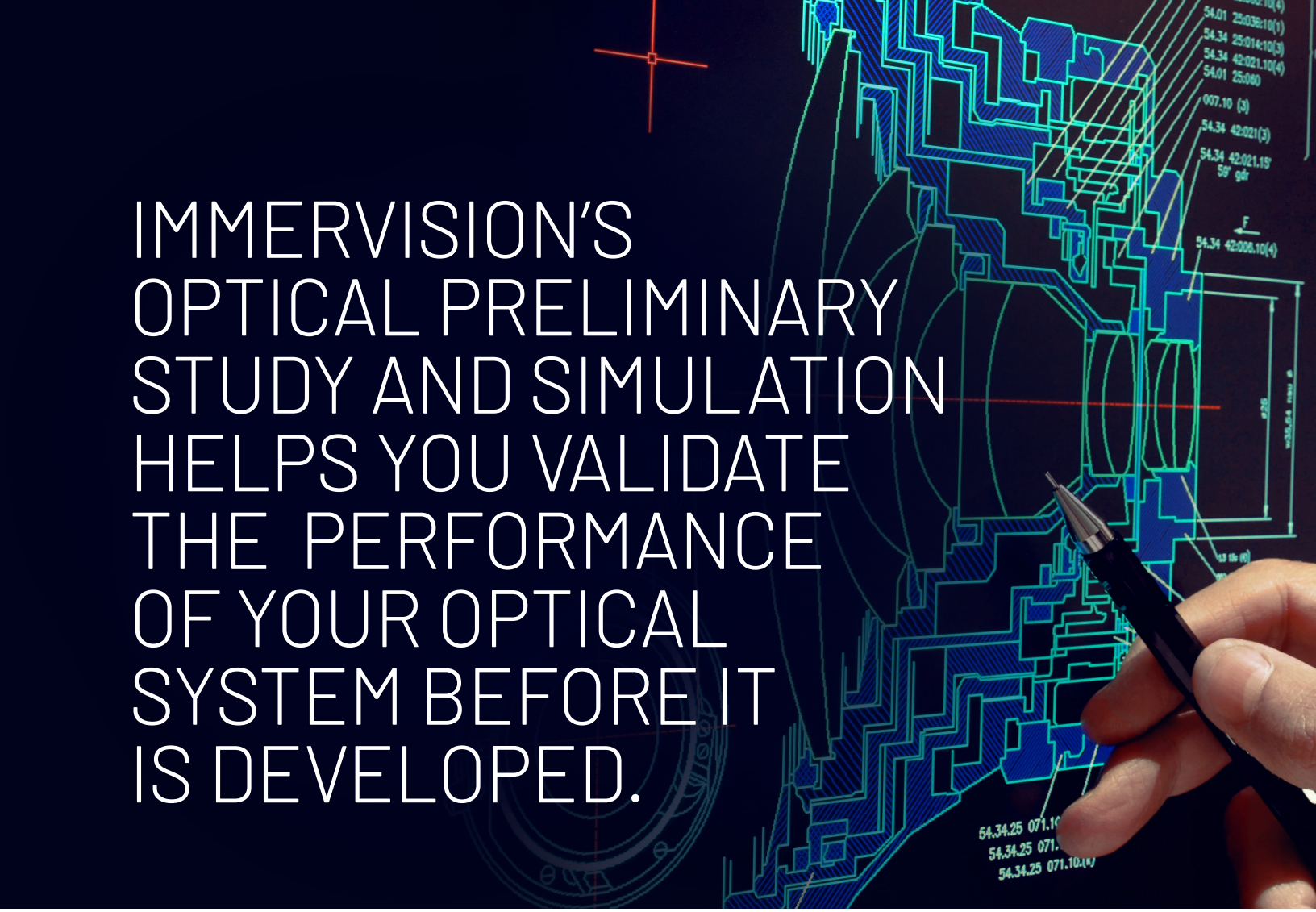
OPTICAL PRELIMINARY STUDY AND SIMULATION OFFER

IMMERVISION

see more, smarter



IMMERVISION'S OPTICAL PRELIMINARY STUDY AND SIMULATION HELPS YOU VALIDATE THE PERFORMANCE OF YOUR OPTICAL SYSTEM BEFORE IT IS DEVELOPED.

Accessing InnovationLab state of the art equipment and advanced analysis and simulation software, our combined scientists in optical design and image processing will test your preliminary camera system specifications against your expected results so you can build the next generation of intelligent vision systems for your device.

UNIQUE QUICK DELIVERY BETWEEN 2 TO 3 WEEKS

Simulation Study Description

The goal of the Preliminary Study is to validate and confirm all optical design specifications by simulating the resulting image of your optical system.

At beginning of the study, the identified optical requirements are used for simulation study. Using the resulting image, Immervision will discuss and review simulation results with your team. Based on this feedback, new rounds of simulation study could be carried out by Immervision. After two (2) rounds of simulation and review together, it is expected to reach the optimal resulting image and to determine the optical parameters.

We use Immervision's PGMS tool to find the optimal parameters such as Field of View, Sensor Resolution and Distortion Profile. The key parameters determine the resulting image resolution profile that will have a significant impact on the lens design structure and lead time.

WE WORK AND ACCOMPANY YOU

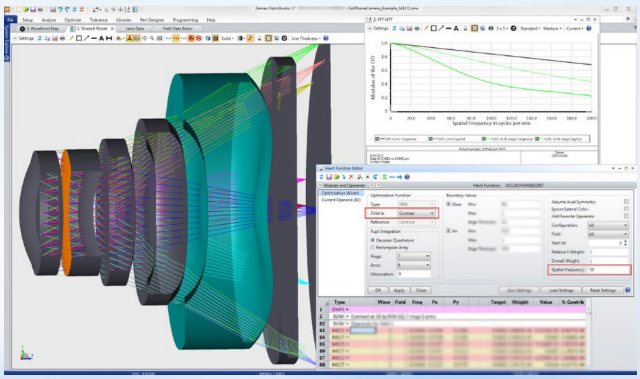
to validate your optical solution

You have an application, and

YOU ARE DESIGNING A VISION SYSTEM.

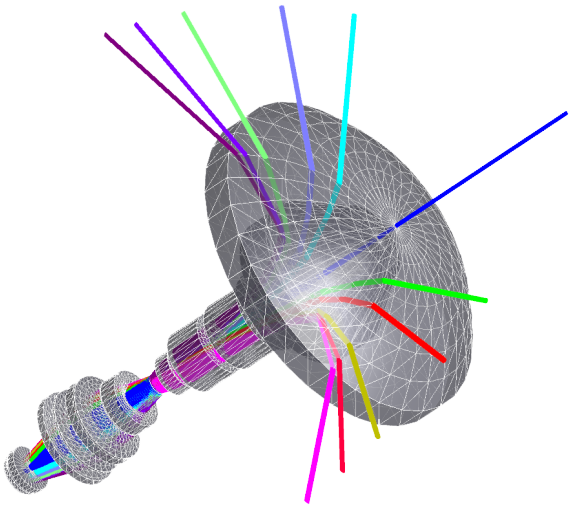
The application requirements are defined but you might not have the expertise to translate them into vision system requirements (e.g.: resolution, FoV, MTF, F#)?

In this case, we provide our customers a complete report that includes **vision system specifications (parameters such as optics and suggested sensors) and image simulations.**



You have an idea.

YOU NEED TO KNOW IF YOU CAN AFFORD IT.

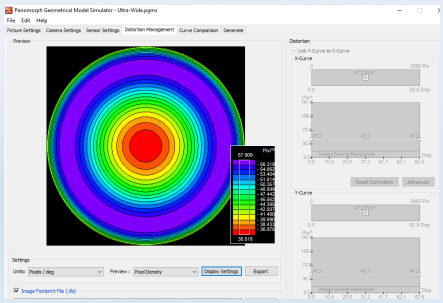


You have an achievable idea but you are still not sure if your vision system can be achieved within the limits of your budget?

We generate a report that outlines suggested custom optic and suggested construction with **project costs estimation vs. off-the-shelf solutions, along with image simulations.**

You want to see results before allocating more resources.

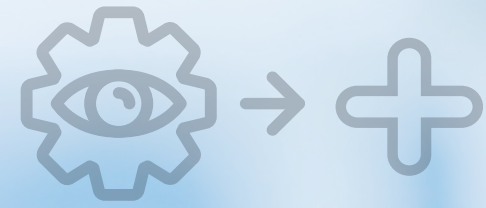
WE CREATE OPTICAL SYSTEM SIMULATIONS.



If this is the case, before investing in lens design and tooling, you may want to analyse the potential pixel output and result of your vision system for either human vision or computer vision (e.g accuracy of AI algorithm, generating training dataset, etc.).

This report focus is placed on the optical system simulation, based on rounds of iterations to help gather feedback.

In addition, a professional photographer could capture original high-resolution images in the context of your application as input for the simulation software (costs of photo shoot and stitching not included.)



A constructive and innovative approach

Design thinking process

We use Design Thinking to collaborate with our client and with other stakeholders at every stage of the research and development process.

The Optical Preliminary Study and Simulation is done with the constructive Design Thinking methodology, that helps you accelerate the emergence of new innovative solutions. Our deliverables can be an **Engineering Study Report** (our preferred solution), an **Image Simulation**, or as an option, a **Project Approach** that outlines budget and schedule estimations.

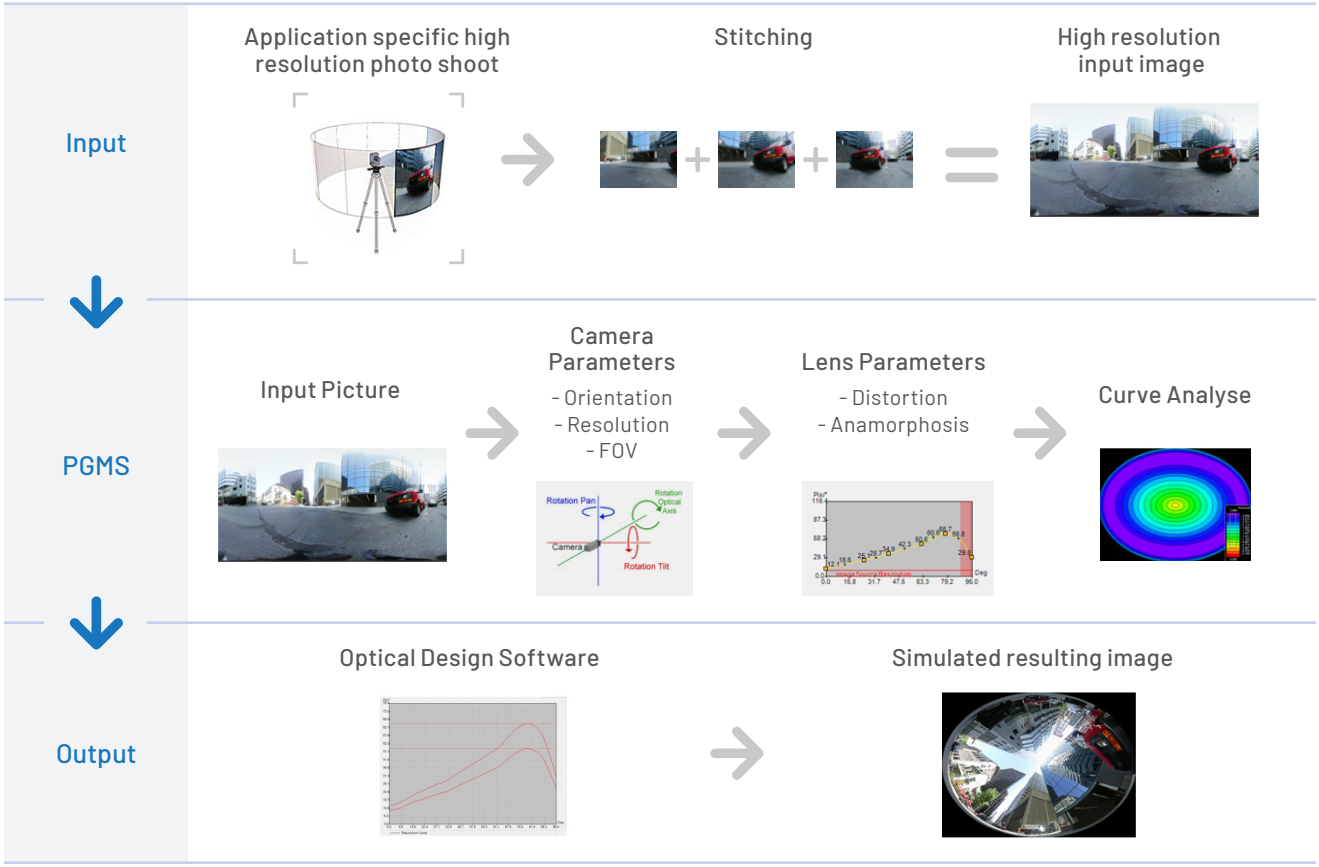
UNDERSTAND		EXPLORE		MATERIALIZE	
1. Empathize	2. Define	3. Ideate	4. Prototype	5. Test	6. Deliver
It starts with people. Understanding users' needs and the problems they face is paramount to what we do. Usually, our client provides us with enough information to inspire our work.	We use this information to frame the right questions and to define the problem in a way that will inspire others to search for creative solutions.	We brainstorm on potential solutions. Generate innovative ideas. Gather inspirations. Move past the obvious toward breakthroughs.	We build a minimum viable solution, a rough prototype to validate our assumption and learn how to make the idea even better.	We conduct the necessary testing to learn from experimentation, refine ideas and iterate from feedback.	We craft the story and deliver a documented solution, ready for implementation. The blueprint for putting the vision into action.

BENEFITS
of hiring our experts

- Leverage a team of experts to accelerate your project definition and development cycle
- Reduce your R&D cost and optimise your resources
- Let your Eng. team concentrate on what they do best, while gaining optical expertise

Simulation Approach

PGMS OVERVIEW



Specification of the work

Identification of operational and functional optical & system requirements

Using an input high resolution picture along with camera parameters (orientation, resolution and FoV), we complete image simulations reflecting the ideal lens system. The resulting simulations are based on the sensor resolution, lens footprint, FoV and distortion only and will not include impacts of other optical and sensor properties (image quality like MTF, tolerances departure, sensor noise, spectral response, relative illumination, etc.).

A viewing software is provided for undistorted viewing of the simulated images. We include a comparative analysis on the impact of different lens distortion profiles on the resulting image to determine the optimal distortion profile that will meet the system requirements specified by you.

Deliver

- A preliminary lens construction (lens layout) to provide an overview of the design
- A simulation report including one (1) simulated image in a video conference application scenario and one (1) simulated image in a selfie/groupie application

  Note: No optical design will be delivered during this preliminary study. Such optical design (preliminary and final) can be performed subsequently in collaboration with the selected lens manufacturer.
- Engineering study report
- Project budgetary and timing estimation

Timing

Two (2) to three (3) weeks

Cost

To learn more about the price of the OPSSO, please contact us.

WHAT WE CAN BRING TO THE TABLE

Optical system simulation
(lens FoV, lens distortion, camera resolution)

"Off-the-shelf" lens, sensor, and camera selection for your project. Comparative evaluation of multiple camera solutions according to key requirements (object identification, image quality, etc.)

Optical system performance benchmarks

Preliminary optical construction suggestion based on specifications