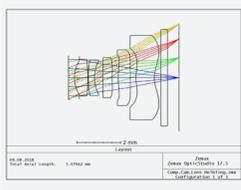


Optics, Embedded Vision and Sensor systems

Our service portfolio:



Optical Design and Calculations



Laser systems & beam shaping



Low-cost Sensor Systems & Modules



Optical Devices



Embedded Vision & Single-Board Computer



Image enhancement & ISP tuning



Camera & Camera Modules: Evaluation & Development



AI and computer vision algorithms



Innovation together we do it

Founded in 1963, the Helbling Group operates internationally and combines engineering and consulting expertise. The Helbling Group is managed by 37 Partners and employs over 630 people at locations in Switzerland, Germany, Poland, the USA and China. The Helbling Group focuses on providing selected services in the areas of innovation and product development, management consulting, mergers & acquisitions, business turnarounds and financial performance management, IT, real estate and construction planning.

Helbling Technik is a division of the Helbling Group and currently employs over 500 professionals. Our vision "Innovation, together we do it" positions Helbling Technik as a trusted long-term partner within its clients' innovation network. Helbling Technik's highly qualified engineers, computer scientists, physicists and human factors experts use state-of-the-art development tools, processes, laboratories and tools to develop innovative and successful products and support clients around the world from idea to market launch.

Kontakt

Helbling Technik WIL AG
Hubstrasse 24
9500 Wil SG, Schweiz



helbling.ch

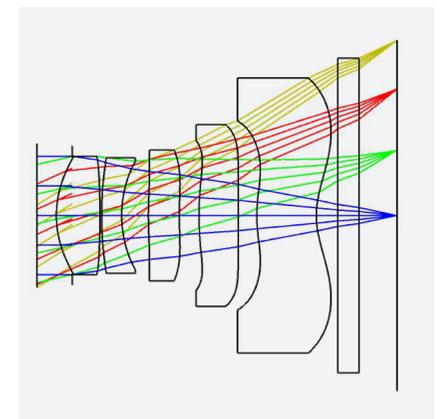


Dr. Johannes Eckstein
Head of Development Optics & Sensor Systems, Partner
Johannes.Eckstein@helbling.ch
T +41 71 913 82 57
M +41 76 583 82 97



Optics Design and Simulation

From concept to reality: customer-specific optical designs from UV to far infrared - modeling, dimensioning, simulation, and optimization of imaging and non-imaging optical systems.



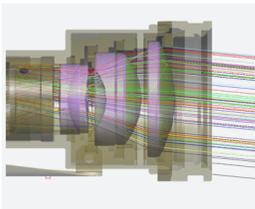
Helbling Technik WIL AG
Innovation, together we do it

Simulation based optical system design

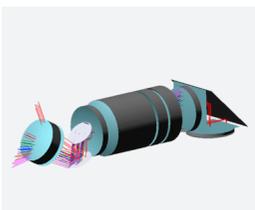
Optical simulations and optical design play a key role in the development of innovative optical systems. Helbling's service portfolio includes the dimensioning, simulation and optimization of imaging and non-imaging optical systems. Helbling's experts excel in both developing new systems and optimizing existing ones.

In the field of modeling, dimensioning, simulation, and optimization of imaging and non-imaging optical systems, we focus in particular on:

- Light guides and illumination optics
- Beam shaping and laser optics
- Application-specific camera lenses



Stray light analysis for laser range finder.

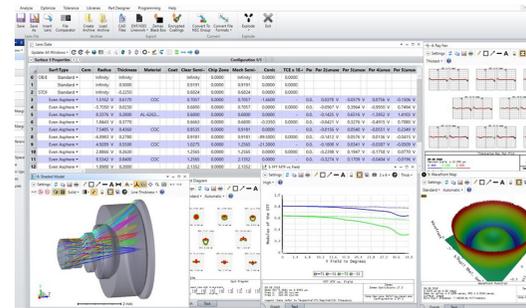


Lens design for a 4K stereo endoscope using the chip-on-tip technology.

Imaging and non-imaging optics

Your advantages:

- Broad range of simulations for different optical systems: From light guides and illumination optics, optical sensors, beam shaping and laser optics to application-specific camera objectives.
- Versatile tools: Profound knowledge in LightTools, OpticStudio (ZEMAX), CodeV and fOptik. Additionally, scripts for data processing are available in Matlab and Python.
- Experimental validation: A well-equipped optics lab verifies simulation results for reliable performance.
- Freeform optics expertise: Specialized in freeform optics for efficient beam shaping and light distribution.



Lens design of a fast lens for a time-of-flight camera, performed in Zemax OpticStudio.

From ideation to product



Additional services complete the portfolio of Helbling:

- Well-equipped laboratory for optical experiments and for acquisition of photometric quantities, beam profiles, optical power and spectra.
- Goniometer for optical characterization of light sources & detectors, and for determination of light scattering properties of materials and surfaces.
- 3D CAD integration and preparation of drawings according to ISO 10110

At Helbling, all developments follow an established development process:

- Analysis of the task.
- Definition of requirements.
- Development, implementation, optimization and verification.
- Industrialization.
- Support of market introduction and lifecycle management.
- Helbling is ISO9001/ ISO13485 certified.