Optical Systems

Applied optics

- Interferometry
- Optical Coherence Tomography (OCT)
- Confocal Microscopy
- Optical Microsystems

Computer vision

- Medical Imaging
- Machine Vision

Application fields

- Optical measurement : interferometry, machine vision, confocal microscopy
- Adaptive optical systems
- Image processing
- Medical Imaging
  - Ophtalmology
  - Tissue inspection
- Machine Vision 2D and 3D
  - Dimensional control (gauging)
  - Quality inspection
  - Robot guidance

A project to submit, an analysis to conduct, a solution to find?

Your contact:

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ISYS
Network of excellence
Integration and Systems

The HES-SO “Integration and Systems” network of excellence consists of over 150 engineers with recognized expertise in the fields of micro-systems, embedded systems, mechatronics and signal processing.

Five different thematic clusters have been created to gather the best competences of the network, independently from the location of engaged resources:

- Optical systems
- Sensors, actuators and conditioning
- Mechatronics and control software
- Nomadic systems
- High performance embedded systems

Looking for more information?

www.isys.hes-so.ch

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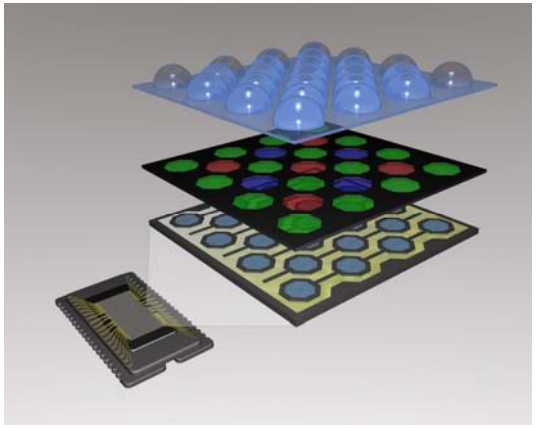
Hes·so
Haute Ecole Spécialisée de Suisse occidentale
Fachhochschule Westschweiz
University of Applied Sciences Western Switzerland



Optical Systems

7 professors and their team ready
to face new challenges with you

ISYS
Network of excellence
Integration Systems

Your needs Our skills

Your needs

- Applied research and development (aR&D)
- Consulting, preliminary studies and expert reports
- Prototyping for assess technological risks
- Continuing education courses

Our skills

- Optical instruments design for medical and industrial applications
- Optical systems design and characterization
- Refractive and diffractive optical Microsystems characterization
- Prototyping of measuring systems for dimensional measurements and quality control
- Fiber optic source, fiber optic and photo detectors
- Optical Sensors for medical application
- Optical module design (optic, lighting and camera)
- Machine vision software development

Recent projects

Design of compact interferometric sensors for physical dimensions measurement

Realization of various sensors allowing the measure of length, distance or motion by interferometry for industrial applications and optical tomography

Segmentation of the tumors of the liver and the brain

Processing of medical images allowing to identify tumors in the liver and in the brain

Miniature Low cost interferometric motion sensors

Development of a motion sensor prototype based on the principle of interferometric "self-service restaurant-mixing", achieving an accuracy of 1micron over a distance of 100 m.

3D Vision

3D Vision System combining an OCT image and a 2D image for parts up to 30 mm. Allow to acquire several images by second

Flowmetry laser Doppler

Design of a measurement instrumentation of flowmetry laser Doppler for small animals. Miniature instrumentations for the measure of the color, the transmission and the measure of refractive index

Our engineers at your service

Thanks to a pro-active technological survey, our professors and their collaborators are positioned at the leading edge of their specialties. They will bring advanced skills to design new solutions to suit your needs.

Stéphane Bourquin

Optical Coherence Tomography

Martial Geiser

Optical Systems design and Laser Doppler flowmetry (for ophthalmology)

Marc Jobin

3D Interferometric microscopy

Michel Kocher

Image processing, pattern recognition and systems identification

Jacques Richard

Reverse engineering by industrial photogrammetry or 3D modeling

Yves Salvadé

Dimensional Metrology

Aldo Salvi

High speed vision Systems and 3D vision Systems