



Haute école d'ingénierie et d'architecture Fribourg
Hochschule für Technik und Architektur Freiburg

Hes·so

Applied research and development

Collaboration driving innovation

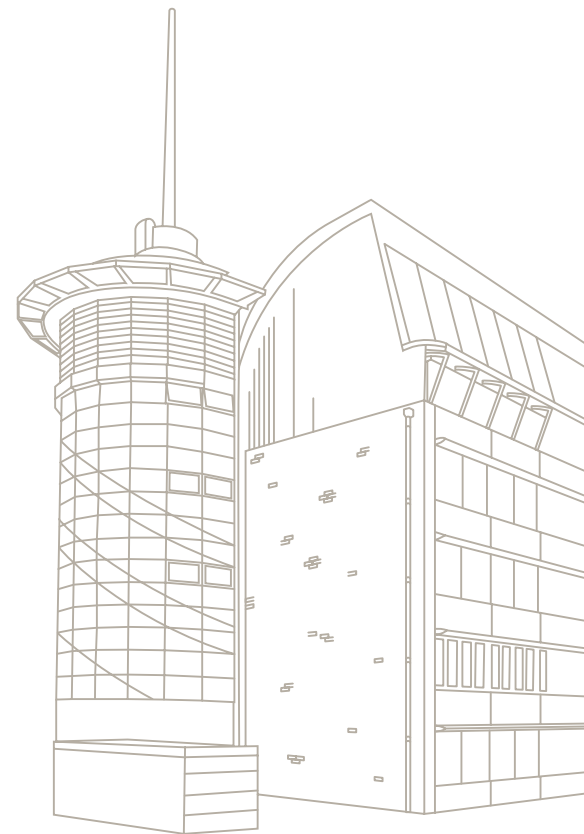
Table of contents

Research at the service of society	2
<hr/>	
Why choose the HEIA-FR as a collaboration partner?	3
<hr/>	
Applied research institutes	5
ChemTech	6
ENERGY	7
HumanTech	8
iCoSys	9
iPrint	10
iRAP	11
iSIS	12
iTEC	13
SeSi	14
TRANSFORM	15
<hr/>	
Centers of competence	17
BCC	18
ROSAS	19
Smart Living Lab	20
iPrint	21
<hr/>	
Research Services	22
A collaboration model for every need	23
<hr/>	
Continuing education	24
Programs offered by the aR&D	25
<hr/>	
Location and contact	26

Research at the service of society

Located in the heart of Switzerland, the HEIA-FR is a bilingual School of Engineering and Architecture that collaborates closely with economic and industrial actors.

Every year, the School of Engineering and Architecture of Fribourg (HEIA-FR) trains around 1000 students in six different Bachelor's programs and four Master's programs. It also hosts a rich applied research and development (aR&D) network with close ties to the economy: ten institutes and four centers of competence address the technical and scientific challenges defined by their numerous regional and national partners. In the following pages, we invite you to learn more about the research activities of the HEIA-FR.



FOUNDED IN
1896



BACHELOR'S PROGRAMS

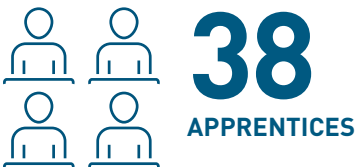
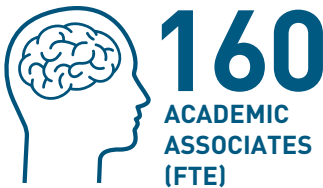
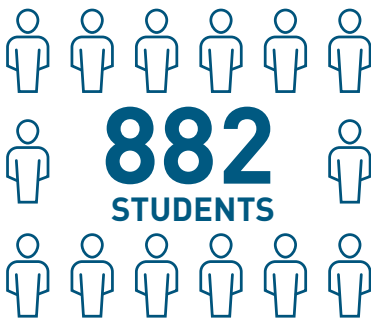


4 HES-SO MASTER'S PROGRAMS

Hes·so

MEMBER OF THE UNIVERSITY
OF APPLIED SCIENCES AND ARTS
WESTERN SWITZERLAND

IN 2023

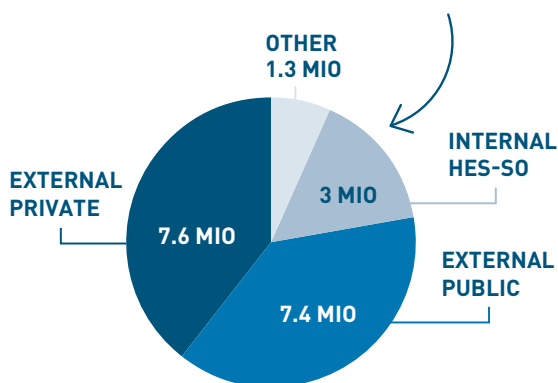
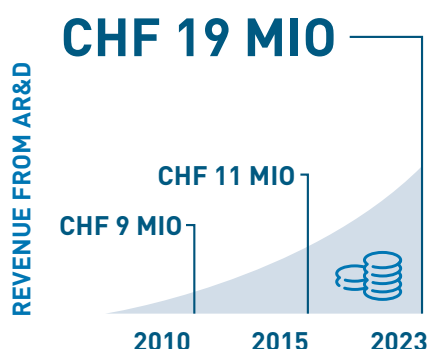


Why choose the HEIA-FR as a collaboration partner?

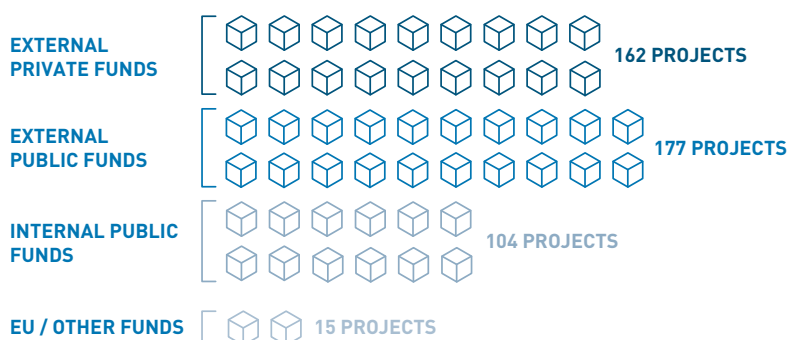
The HEIA-FR's applied research and development is open to economic partners of all sizes, from small local enterprises to public institutions and multinational companies.

The HEIA-FR is a research institution on a human scale. Our projects contribute to a more efficient, resilient and sustainable society by developing market-oriented products, services and technologies across a wide range of domains. These include industrial technologies, construction and the environment, and information and communication technologies. With highly-qualified staff and state-of-the-art facilities, our institutes and

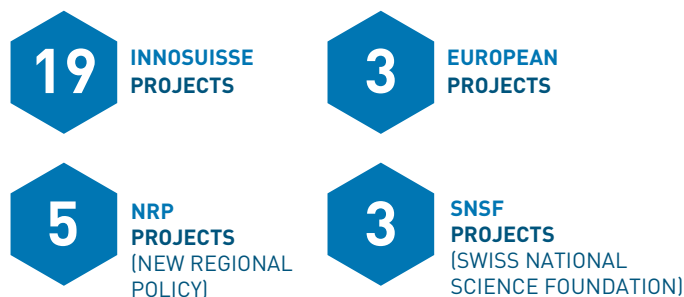
centers of competence are able to address the needs of the economy using an experimental yet practical approach. Furthermore, our collaborative projects can qualify for funding from Innosuisse, the Swiss Innovation Agency, or from the New Regional Policy of the Canton of Fribourg, among others.



458 ACTIVE PROJECTS IN 2023



226 PROJECTS LAUNCHED IN 2023, INCLUDING:



215

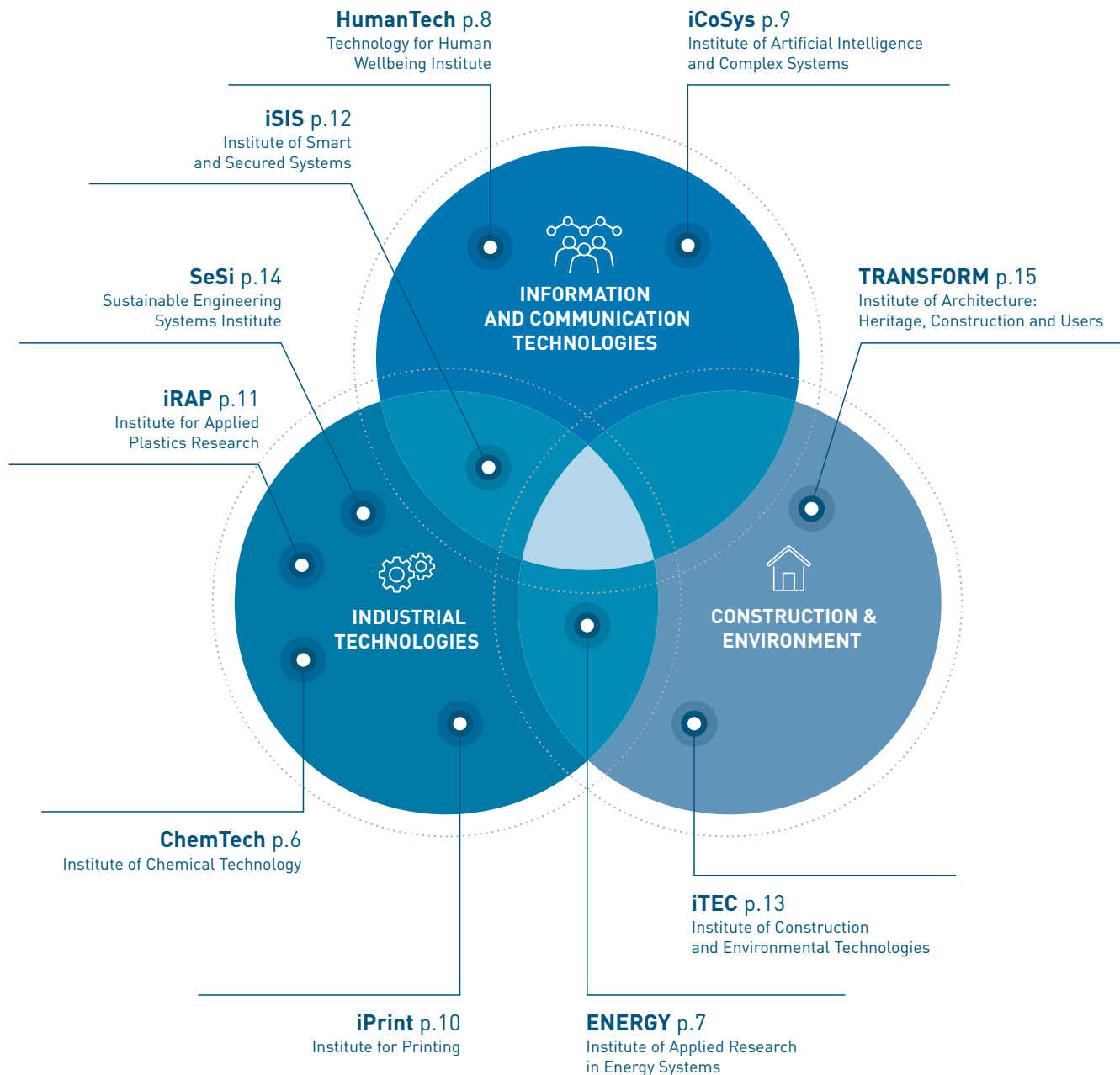
COMPANIES PARTNERING ON AR&D PROJECTS



Applied research institutes

Innovation in promising research areas

The work done in our different applied research institutes converges into three main clusters. This expertise enriches the content of our educational and training programs.





go.heia-fr.ch/en/chemtech

ChemTech

Institute of Chemical Technology

Applied chemistry at the service of the industry

With deep expertise in synthesis, chemical engineering, analytics, characterization, process chemistry, scale-up and production, the ChemTech institute specializes in transforming molecular innovations into industrial processes for the chemical, pharmaceutical, medtech, food, and watchmaking industries among others.

Chemical process development

Synthesis and catalysis in the fields of fine chemicals and pharmaceuticals, development of intensified and sustainable materials and processes, optimization, scale-up and production

Characterization technology

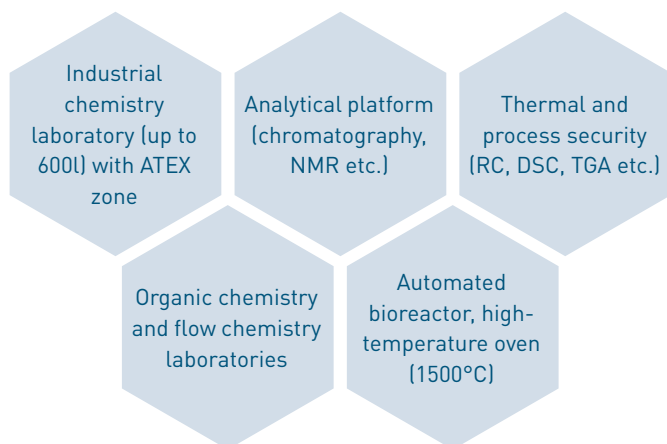
Property characterization of new materials and surfaces, development of online analytical and monitoring methods (PAT and bio-PAT)

Flow chemistry

New synthesis and isolation technologies for flow systems, conversion of batch or fed-batch processes into continuous processes, particularly through the use of microreactors



FACILITIES



HEAD OF THE INSTITUTE



Christophe Allemann
christophe.allemann@hefr.ch
+41 26 429 67 97

« Chemistry provides answers to some of the urgent sustainability questions of our time. »



CASE STUDY



go.hefr.ch/chemtech-play

Metalor
Creation of new catalysts



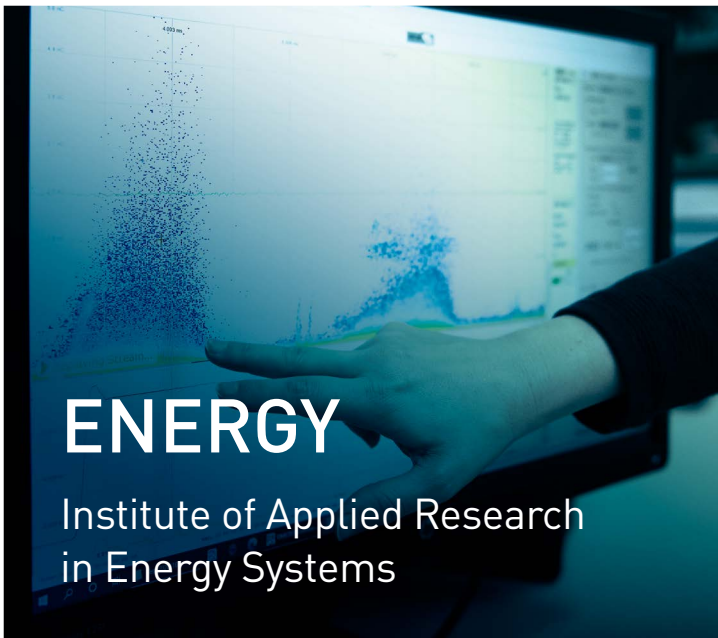
PARTNERS (non-exhaustive list)

Scientific

- University of Fribourg
- School of Viticulture and Enology, Changins
- Swiss Federal Institutes of Technology (EPFL, ETHZ)

Industrial / Institutional

- Bachem
- Bloom Biorenewables
- Metalor
- Novartis
- Firmenich



ENERGY

Institute of Applied Research
in Energy Systems

Electrical and thermal networks

Design, modeling, simulation and testing of components and systems for networks; energy integration, management and optimization of networks

Towards simpler and more efficient energy systems

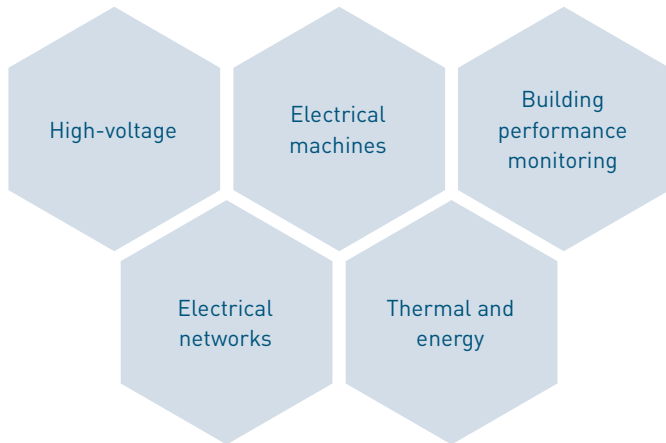
The ENERGY institute supports and promotes the development of a sustainable society in terms of energy production and energy management. Our projects are set in a context of profound evolution fueled by climate change, the phasing-out of nuclear power, and the growth of the renewable energy sector.

Building and neighborhood performance and environmental impact

Urban heat islands, life cycle analysis in the built environment, the physics of buildings and technical installations



LABORATORIES



HEAD OF THE INSTITUTE ad interim

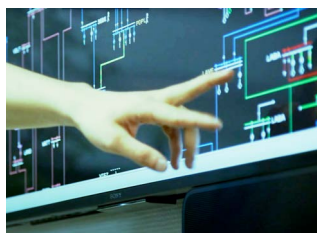


Patrick Favre-Perrod
patrick.favre-perrod@hefr.ch
+41 26 429 65 88

« The success of the energy transition lies in anticipating both needs and technologies. »



CASE STUDY



go.hefr.ch/energy-play

Romande Energie SA
Fault location tool



PARTNERS (non-exhaustive list)

Scientific

- Swiss Federal Institutes of Technology (EPFL, ETHZ)
- Swiss Federal Laboratories for Materials Science and Technology (Empa)
- Université Grenoble Alpes

Industrial / Institutional

- Groupe E
- Romande Energie
- Canton and City of Fribourg
- Swiss Federal Office of Energy (SFOE)



HumanTech

Technology for Human Wellbeing Institute

Between humans and technology

The HumanTech institute envisions a future where technology enhances human wellbeing, empowering individuals and communities through innovative, interdisciplinary research. We place humans at the core of technological advances and ensure that our technologies benefit all facets of human life.

Advanced interfaces and smart spaces

Improve life quality and human wellbeing using new technology: human-computer interaction, companion technologies, immersive experience, conversational interfaces, empathic interaction

Human-centered Artificial Intelligence

Design AI systems that enhance human capabilities and foster collaborative interactions between humans and technology: human analytics, explainable AI, machine learning, data analysis, sustainable human-AI collaboration

Human-centered innovation

Create more effective and sustainable solutions by placing human experience and values at the core of the innovation process: design thinking, user-centered design, user evaluation, usability test, ergonomics



LABORATORIES

“Design for Innovation”: interdisciplinary research

Usability



HEAD OF THE INSTITUTE



Elena Mugellini
elena.mugellini@hefr.ch
+41 26 429 68 70

« We are driven by the need to understand how technology can be of real service to humankind. »



CASE STUDY



go.hefr.ch/humantech-play

Intermobility

Fleet management tool for a free-floating bicycle-sharing project



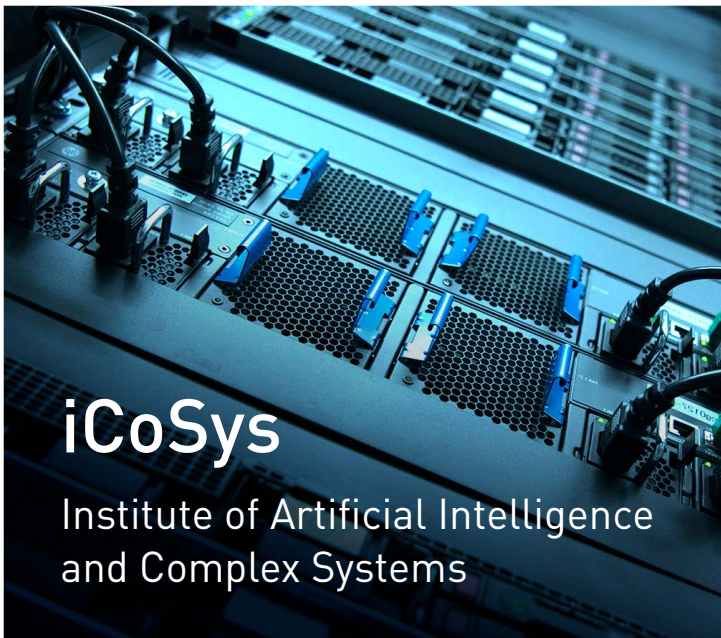
PARTNERS (non-exhaustive list)

Scientific

- The Polytechnic University of Milan, Italy
- Escola Superior de Enfermagem de Lisboa, Portugal
- Faculdade de Ciências da Universidade de Lisboa, Portugal
- Ecole supérieure des technologies industrielles avancées, Biarritz, France

Industrial / Institutional

- Federal Food Safety and Veterinary Office (FSVO)
- Federal Office of Public Health (FOPH)
- PMF-System
- Lausanne University Hospital (CHUV)
- Renault



iCoSys

Institute of Artificial Intelligence
and Complex Systems

The partner of choice for industrial digitalization

iCoSys leads and supports innovation based on artificial intelligence and complex systems. Our projects draw on the latest developments in informatics, data science, distributed computing, software engineering and mathematical modeling.

Applied AI and machine learning

End-to-end support for companies that use artificial intelligence (AI) technology, from data evaluation and model training to deployment

Distributed computing

Mastery of the latest technology in high-performance distributed computing, optimization of AI applications, big data and simulations

Sustainable ICT for Smart Living projects

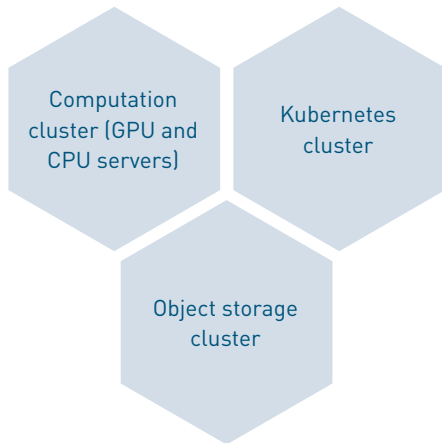
Creation of a more sustainable environment thanks to ICT solutions for smart cities, smart buildings and smart living

ICT for industry 4.0

Enabling efficiency gains for industry through the use of data and advanced algorithms, including the use of artificial intelligence for anomaly detection, predictive maintenance and quality control



FACILITIES



HEAD OF THE INSTITUTE



Jean Hennebert
jean.hennebert@hefr.ch
+41 26 429 65 96

« We assist companies with their digital transition and process optimizations using advanced IT technologies such as artificial intelligence and distributed computing. »



CASE STUDY



go.hefr.ch/icosys-play

Hieronymus

Specialized translation engine using neural networks



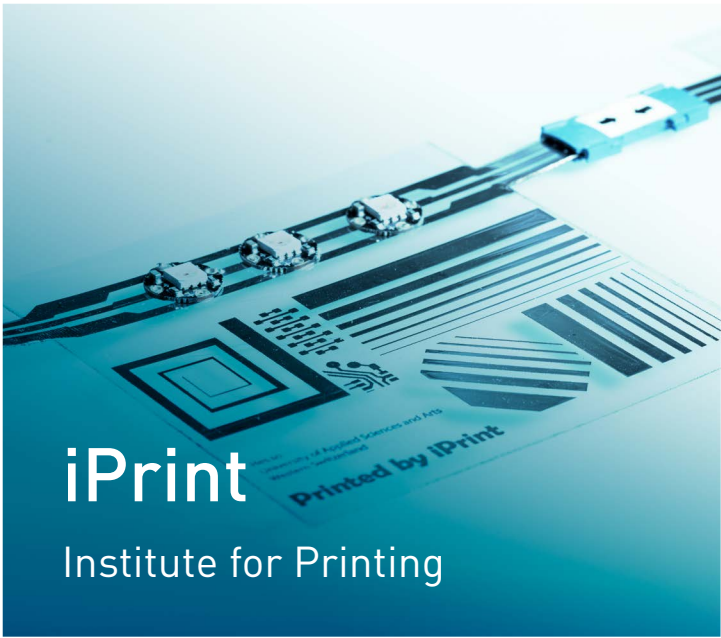
PARTNERS (non-exhaustive list)

Scientific

- University of Fribourg
- Idiap Research Institute
- Edge Hill University
- Lawrence Berkeley National Laboratory

Industrial / Institutional

- Swiss National Library (BNS)
- Google Zürich
- Hieronymus
- Neur.on
- Morphean
- Infoteam
- Immomig



Digital manufacturing by inkjet printing

The iPrint institute is specialized in inkjet technology and digital printing. Our multidisciplinary applied research develops these technologies and widens their field of application by creating new processes. iPrint also proposes hands-on training courses on inkjet technology. iPrint's research institute and competence center (see page 21) form a single entity with unrivalled expertise in printing technologies.

Innovative technologies for digital printing

Development of new technologies enabling the emergence of the digital production of tomorrow

Digital printing process developments

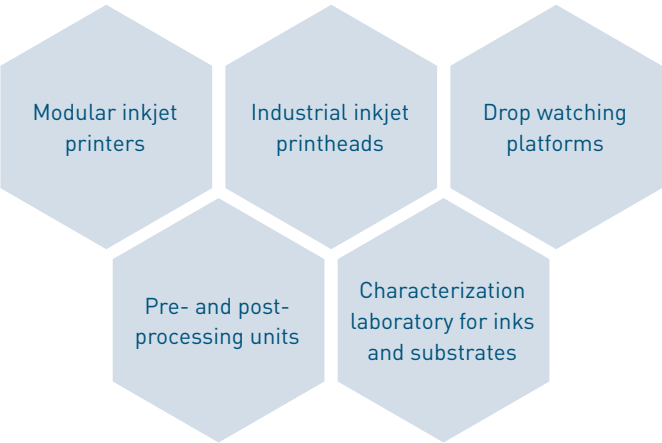
Development and optimization of inkjet-based digital printing processes in a variety of areas (including graphical printing, printing for electronics, biomedical printing and advanced manufacturing)

Technology transfer and education

Promotion of technology transfer for digital printing processes, education of specialists in inkjet related core competencies with a highly interdisciplinary understanding



FACILITIES



HEADS OF THE INSTITUTE

Gioele Balestra
gioele.balestra@hefr.ch
+41 26 429 66 27

Gilbert Gugler
gilbert.gugler@hefr.ch
+41 26 429 68 27

Yoshinori Domae
yoshinori.domae@hefr.ch
+41 26 429 69 03



« As soon as an inkjet-compatible ink can be formulated, there is no limit to the inkjet-based applications that can be developed. »

Gioele Balestra



CASE STUDY



go.hefr.ch/iprint-play

Markem-Imaje
Coding and marking techniques



PARTNERS (non-exhaustive list)

Scientific

- Swiss Federal Institute of Technology Lausanne (EPFL)
- Adolphe Merkle Institute
- University of Cambridge
- Université Grenoble Alpes
- Swiss Federal Laboratories for Materials Science and Technology (Empa)

Industrial / Institutional

- Polytype
- Epson
- Markem-Imaje
- Ursula Wirz Foundation



From materials to polymer applications

The iRAP institute addresses scientific and technical challenges in the field of plastics processing. It offers concrete and efficient solutions to the specific demands of the industrial sector. The competences offered by iRAP range from the material to its application while taking into account the product life cycle.

Plastic and ceramic injection molding (CIM)

Design of plastic and ceramic products, rheological and mechanical simulations, additive manufacturing of molds, process optimization and thermal management of molds

Compounding and extrusion processes, material characterization

Development of high-value compounds, piloting and scaling up of extrusion and compounding processes, characterization and testing of materials

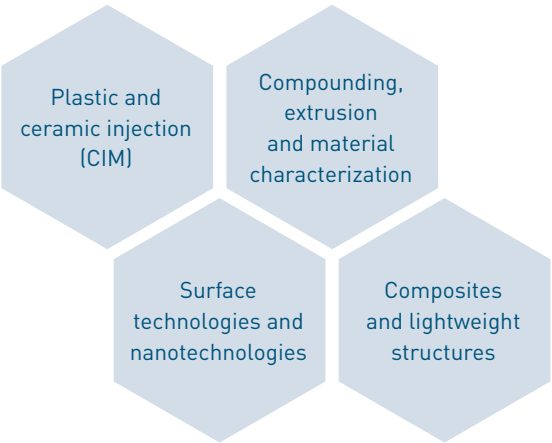
Surface technologies and nanotechnologies

Surface functionalization with atmospheric plasma, nanomechanical and surface analysis, tribology and application of coatings and surface texturing

Composites, design of lightweight structures, and recycling technologies

Design and development of lightweight structures, industrialization and recycling of continuous fiber composites, digital simulation, prototyping

LABORATORIES



HEAD OF THE INSTITUTE



Stefan Hengsberger
stefan.hengsberger@hefr.ch
+41 26 429 67 23

« The responsible and sustainable use of plastics is our mission. »

CASE STUDY



go.hefr.ch/irap-play

Johnson Electric
Design of magnetized rotors

PARTNERS (non-exhaustive list)

Scientific

- University of Fribourg
- University of Applied Sciences of Eastern Switzerland (OST)
- Plastics Training and Technology Center Aarau (KATZ)
- University of Applied Sciences and Arts of Northwestern Switzerland (FHNW)
- Swiss Federal Laboratories for Materials Science and Technology (Empa)

Industrial / Institutional

- Johnson Electric
- Dentsply Sirona
- Bcomp
- DuPont de Nemours
- SIKA
- Colorplastic



isis

Institute of Smart and Secured Systems

Security and reliability at the service of society

With proven experience in the reliability of intelligent systems, the iSIS institute offers unique services in functional safety and certification of complex systems for the automotive, aviation, railway and power generation industries.

Automated mobility

Innovative and ergonomic interdisciplinary solutions (human-machine interaction) for automated transport and mobility in collaboration with SwissMoves

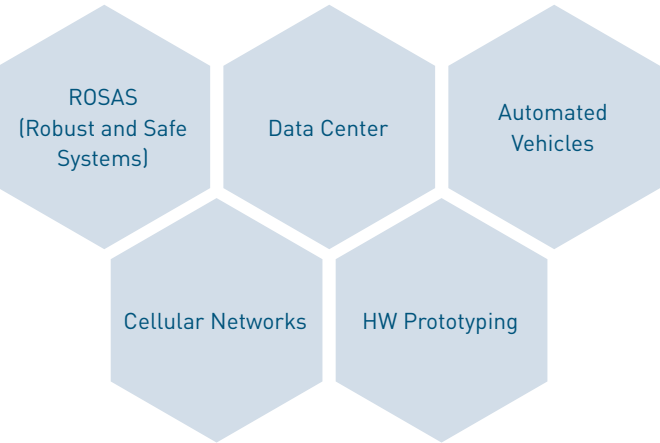
Security and reliability of systems

Efficient protection of critical infrastructure, OT and IT cybersecurity, and in-the-loop design with Model Based Engineering (MBE)

Embedded and interactive systems

Development of hardware and software for embedded, distributed and low-power systems; development of interactive systems for automated mobility, e-learning and e-commerce

LABORATORIES



HEAD OF THE INSTITUTE



Roland Scherwey
roland.scherwey@hefr.ch
+41 26 429 65 90

« With SwissMoves we are working on different themes whose common goal is to make mobility safer, more sustainable and more efficient. »

CASE STUDY



go.hefr.ch/isis-play

Parker Meggitt
Model Based Engineering

PARTNERS (non-exhaustive list)

- | Scientific | Industrial / Institutional |
|--|----------------------------|
| - DEFCON Switzerland | - Swisscom |
| - Institute for Security and Open Methodologies (ISECOM) | - ABB/Hitachi |
| - SwissMoves | - Parker Meggitt |
| - SWITCH Security Workgroup | - Johnson Electric |
| | - Swissdotnet |



go.heia-fr.ch/en/itec



ITEC

Institute of Construction and Environmental Technologies

Paving the way for the civil engineering of tomorrow

iTEC is contributing to a more responsible future for infrastructure and the built environment, with a focus on four key areas: development of reuse and new construction materials (Structure), reimagining mobility (Transport), optimizing foundation and support systems (Geotechnical), and promoting the rational use of natural resources (Soil and water).

Structures

Innovative construction materials; design, modeling, evaluation, and maintenance of new and existing structures with a focus on environmental responsibility

Geotechnics

Physical and numerical modeling of geomaterials and geotechnical structures, soil-structure interaction, probabilistic analysis, and natural hazards

Soil and water

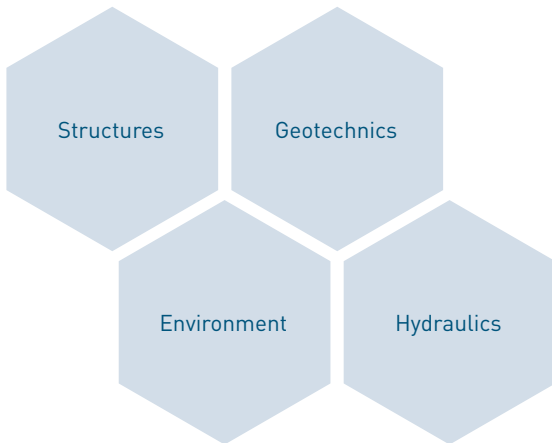
Urban hydraulics, waterways, water treatment solutions, soil protection and management, green infrastructure

Transport and mobility

Automated vehicles, digital twins, new and existing networks, mobility and safety



LABORATORIES



HEAD OF THE INSTITUTE



Fabienne Favre-Boivin
fabienne.favre@hefr.ch
+41 26 429 66 87

« Join us in shaping a sustainable future that preserves the planet's natural resources. »



CASE STUDY



go.hefr.ch/itec-play

Charpentres Vial SA
Timber-concrete composite floor system for buildings



PARTNERS (non-exhaustive list)

Scientific

- Universities of Fribourg, Lausanne, and Neuchâtel
- Swiss Federal Institutes of Technology (EPFL, ETHZ)
- National Institute of Applied Sciences, Lyon (INSA)
- Polytechnic University of Milan
- Cracow University of Technology

Industrial / Institutional

- Swiss Federal Offices (FOEN, FEDRO, SFOE, FOT)
- Municipal and city services (for example: Fribourg, Vaud)
- Swiss Federal Railways (CFF)
- Groupe E
- Building Insurance Agency of the Canton of Fribourg (ECAB)



SeSi

Sustainable Engineering Systems Institute

From ideas to industry

The SeSi institute specializes in high added value mechanical components, as well as in mechanical systems developed using digital tools and designed to be smart and durable.

Systems

Development of design and fabrication processes for products and systems fitting the circular economy

Sustainability

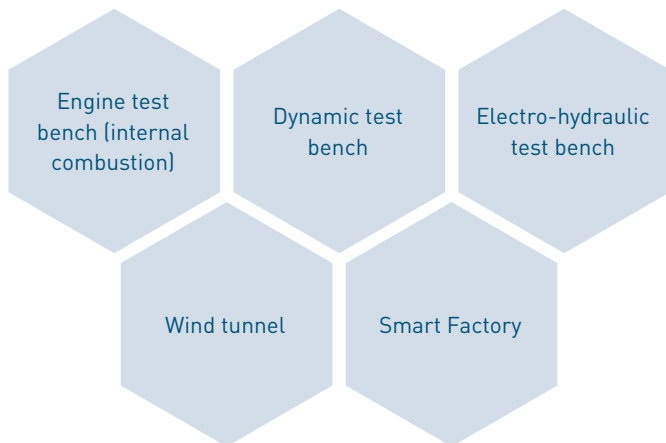
Minimizing energy and resource consumption in production and during product lifetime

Digitalization

Improving development time and reducing production costs through digital modeling (simulation, prototyping)



FACILITIES



HEADS OF THE INSTITUTE

Vincent Bourquin
vincent.bourquin@hefr.ch
+41 26 429 68 41

Laurent Donato
laurent.donato@hefr.ch
+41 26 429 66 77

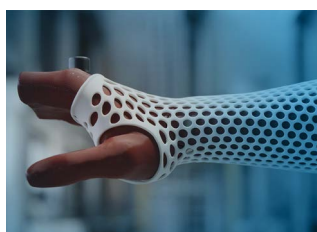


« Sustainable and innovative engineering is at the heart of our research projects. »

Vincent Bourquin



CASE STUDY



go.hefr.ch/sesi-play

Swibrace

Development of adaptive orthopedic braces



PARTNERS

(non-exhaustive list)

Scientific

- Swiss Federal Institute of Technology Lausanne (EPFL)

Industrial / Institutional

- Johnson Electric
- Liebherr Machines Bulle
- Fiat Powertrain Technologies
- Transports publics fribourgeois (TPF)



TRANSFORM

Institute of Architecture: Heritage, Construction and Users

Transformation: a synonym for innovation

TRANSFORM is the only research institute in Switzerland focusing on urban and architectural transformation as an area of innovation. Its interdisciplinary approach contributes to creating a sustainable built and natural environment. TRANSFORM works towards the judicious integration of innovative technologies and processes into the renovation, restoration, redevelopment, requalification or reuse of buildings, neighborhoods and cities.

Built and territorial heritage

Heritage-conserving adaptations, planning the transformation of urban and rural territory while respecting its identity

Architecture and energy

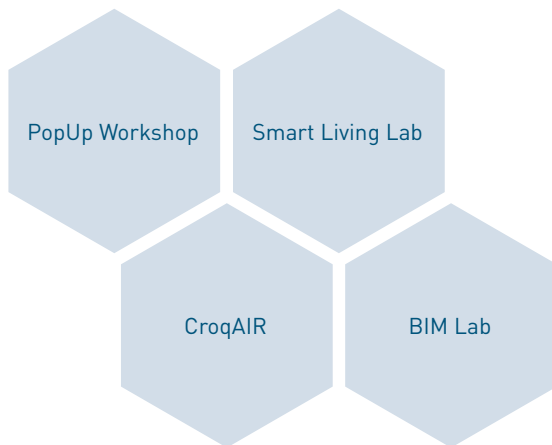
Integration of technology into construction, focus on construction processes, design of methods that minimize damage from construction

Interactions between users and places

Adaptation of architectural typologies to fit user profiles, design of spaces that respond to health-related needs and problems, monitoring new materials



FACILITIES



HEAD OF THE INSTITUTE

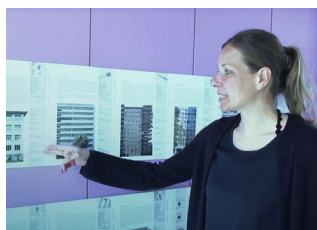


Sér na Vanbutsele
serena.vanbutsele@hefr.ch
+41 26 429 68 76

« The city of the future is already here.
The challenge is to transform it and
to adapt the existing building stock
so we can maintain a quality of life
while protecting natural resources. »



CASE STUDY



go.hefr.ch/transform-play

Energy renovation
Holistic approach to
the building envelope



PARTNERS

(non-exhaustive list)

Scientific

- Swiss Federal Institutes of Technology (EPFL, ETHZ)
- University of Fribourg
- University of Geneva
- Lucerne University of Applied Sciences and Arts
- University of Burgundy Franche-Com 

Industrial / Institutional

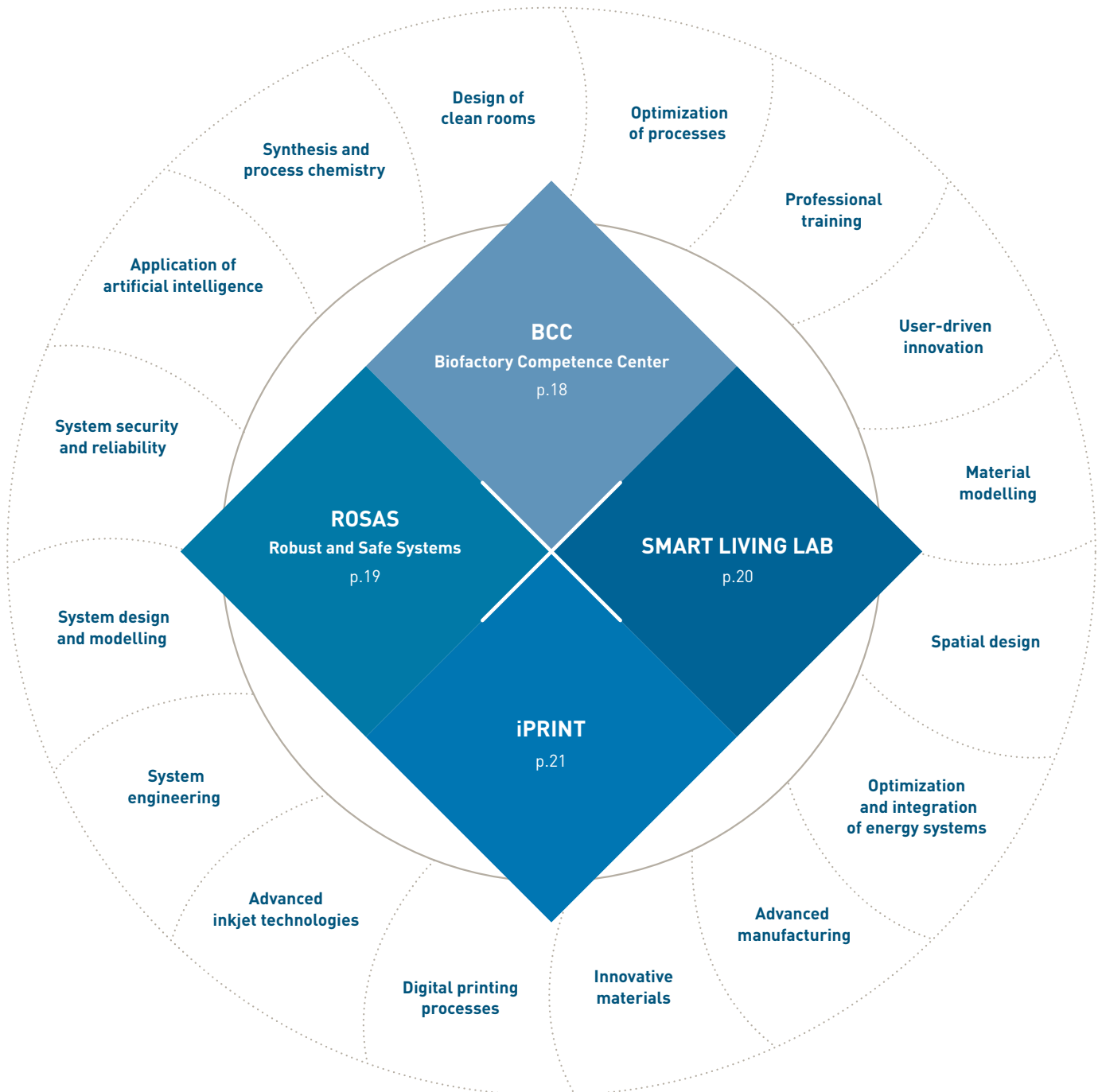
- Federal Office of Public Health (FOPH)
- Losinger Marazzi SA
- City of Fribourg
- Canton of Vaud
- Suisse Energie
- Patrimoine Suisse
- La Ressourcerie



Competence Centers

At the intersection of specialized knowledge fields

The centers of competence of the HEIA-FR are characterized by their interdisciplinarity and their understanding of market needs.





BCC

Biofactory Competence Center

Your biotech partner

The BCC supports its partners in the development of innovative and scalable biotechnological production processes in the biopharmaceutical sector, as well as in the food industry and industrial biotechnology. It is also a training center serving the biopharmaceutical industries.

Applied Research

The BCC develops innovative biotechnological production processes that meet industry standards in specialized fields such as therapeutic proteins, gene therapy, medical implants, antimicrobial resistance, and food product development.

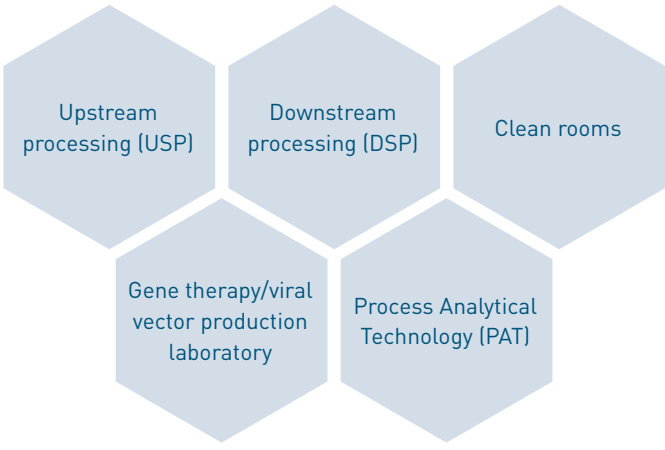
Teaching and Professional Training

The BCC is equipped with specially designed clean rooms for training courses in the field of biopharmaceutical manufacturing and related industries.

Exhibition Spaces

Located in the heart of Switzerland and Europe, the BCC offers its partners a unique opportunity to showcase and test their equipment.

FACILITIES



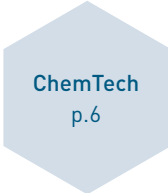
DIRECTOR



Carmen Jungo Rhême
 carmen.jungorheme@hefr.ch
 +41 26 429 66 22

« We aim to be your partner of choice, developing innovative and sustainable biotechnological production processes that address global health, environmental, and industrial challenges while upholding the highest quality standards. »

PARTICIPATING INSTITUTE



PARTNERS (non-exhaustive list)

- | Scientific | Industrial / Institutional |
|--------------------------|---------------------------------|
| - Regenosca SA | - Cytivia |
| - CHUV | - Repligen |
| - Micros Pharmaceuticals | - Kuhner Shaker |
| | - Roche |
| | - Nikon |
| | - PMS Process Management System |



ROSAS

Robust and Safe Systems

Engineering at the service of safety and security

The ROSAS Competence Center is specialized in safe, secure and robust technical systems. Our engineers ensure the safe and reliable interaction of mechanical components, electronic hardware and software in industrial systems. Such systems are integrated in domains such as aviation, automotive and machine industry.

Cybersecurity

Penetration tests, communication protocols, risk and threat analysis, certification processes, support for the implementation of cybersecurity management processes

Safety and reliability

Definition of requirements, analysis of existing processes and optimization opportunities, expert advice, implementation, support for CE marking, device calibration and testing

Systems engineering

Simulation, verification and validation, industrialization, life cycle engineering, optimization, modeling, digital twins

Intelligent systems

Vehicle/machine automation, infrastructure and communication, teleoperation, simulation, certification support, social acceptance, supervision, and predictive maintenance



FACILITIES

Modeling and real-time simulation equipment

Garage and various automated vehicles in development

Teleoperation center



DIRECTOR



Wolfgang Berns
wolfgang.berns@hefr.ch
+41 26 429 67 75

« Our mission is to identify any potential malfunctions in our clients' products, after which we determine what can be done to prevent them and set up a warning system in case they should ever occur. »



PARTICIPATING INSTITUTES

SeSi
p.14

iSIS
p.12

iCoSys
p.9



PARTNERS

(non-exhaustive list)

Scientific

- University of Fribourg
- Technical University of Munich (TUM)
- Shanghai University
- University of Calgary

Industrial / Institutional

- CertX
- Liebherr Machines Bulle
- Parker Meggitt
- Mercury Mission Systems
- Johnson Electric



smartlivinglab.ch



A research and development center focused on the future of the built environment

Smart Living Lab is a place where researchers and companies come together to implement interdisciplinary research projects using experimentation under real conditions. These projects focus on user wellbeing, energy efficiency and the digital transformation. The Smart Living Lab combines the expertise of the Swiss Federal Institute of Technology Lausanne (EPFL), the HEIA-FR and the University of Fribourg (UNIFR).

Wellbeing and behavior

Improve human health and comfort by optimizing indoor environmental quality and influencing behaviors in a positive way

Construction technologies

Monitor resource efficiency and accelerate processes of change in construction

Interactions and design processes

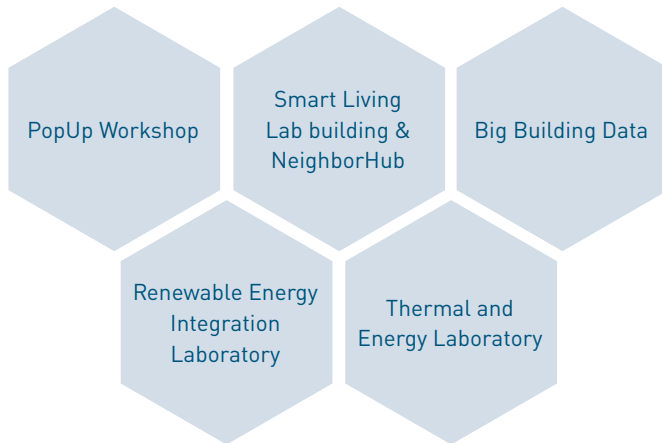
Understand and structure dialogue between stakeholders in the building lifecycle to develop the tools to design, model and operate buildings

Energy systems

Develop smart energy-efficient systems and technologies, improve their management, and anticipate legal and economic impacts



FACILITIES



HEIA-FR MANAGER



Jean-Philippe Bacher
jean-philippe.bacher@hefr.ch
+41 26 429 67 55

« The Smart Living Lab has two key dimensions: smart living, which implies an evolution towards a more sustainable way of life, and living lab, which refers to the importance of providing a dynamic and living setting for innovative experimentation. »



PARTICIPATING INSTITUTES



PARTNERS

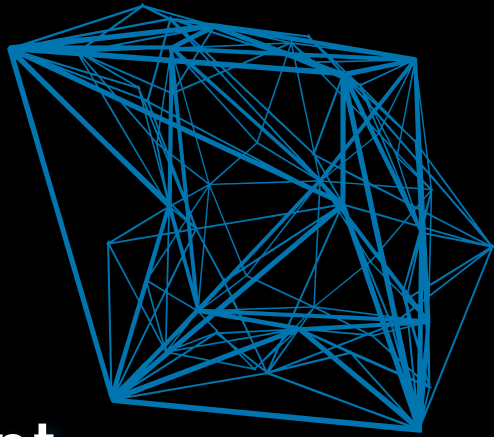
(non-exhaustive list)

Scientific

- Swiss Federal Institutes of Technology (EPFL, ETHZ)
- Université Savoie Mont Blanc
- Université Grenoble Alpes

Industrial / Institutional

- CSD Ingénieurs
- Groupe E
- JPF
- City and Canton of Fribourg
- Swiss Federal Offices (FOPH, SFOE)



iPrint

Competence Center

Shaping the future of printing technologies

iPrint places a strong emphasis on research, development, and innovation in the fields of inkjet and digital printing. Offering high-level continuing education programs and partnering closely with industries and academic institutions, iPrint is an active promoter of technological excellence. The research institute (see page 10) and competence center form a single entity specializing in printing technologies.

Innovative technologies for digital printing

Development of new technologies enabling the emergence of the digital production of tomorrow

Digital printing process developments

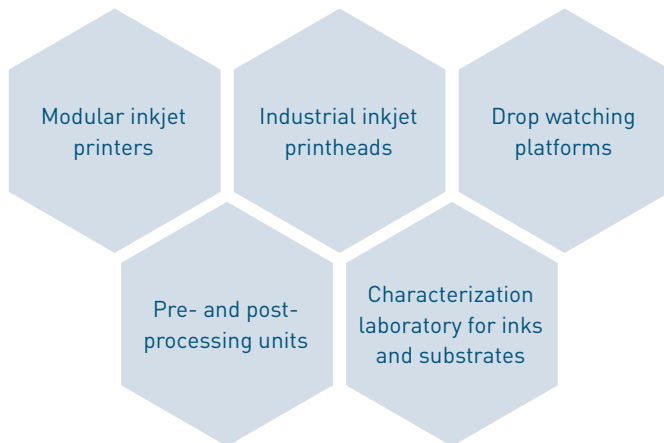
Development and optimization of inkjet-based digital printing processes in a variety of areas (including graphical printing, printing for electronics, biomedical printing and advanced manufacturing)

Technology transfer and education

Promotion of technology transfer for digital printing processes, education of specialists in inkjet related core competencies with a highly interdisciplinary understanding



FACILITIES



CO-DIRECTORS

Gilbert Gugler
gilbert.gugler@hefr.ch
+41 26 429 68 27

Gioele Balestra
gioele.balestra@hefr.ch
+41 26 429 66 27

Yoshinori Domae
yoshinori.domae@hefr.ch
+41 26 429 69 03

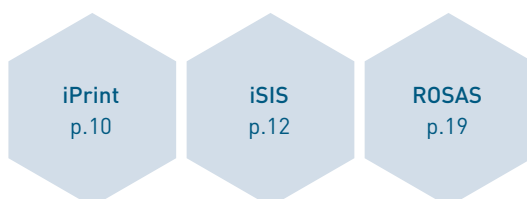


« The challenges of tomorrow are the driving force behind our innovative and creative development activities to utilize inkjet printing as a sustainable production method of the future. »

Gilbert Gugler



IN-HOUSE COLLABORATIONS



PARTNERS (non-exhaustive list)

Scientific

- Swiss Federal Institute of Technology Lausanne (EPFL)
- Adolphe Merkle Institute
- University of Cambridge
- Université Grenoble Alpes
- Swiss Federal Laboratories for Materials Science and Technology (Empa)

Industrial / Institutional

- Polytype
- Epson
- Markem-Imaje
- Ursula Wirz Foundation



Research Services

to support your projects

The HEIA-FR's Research Services aim to assist researchers with every stage of their project, including initial contacts with potential partners, managing contracts and intellectual property, and knowledge transfer.

Our expert team has the right combination of administrative, managerial, legal, communication and project management know-how to help researchers with the procedures involved in bringing a project to fruition.

A key advantage: platforms and networks

As a member of the University of Applied Sciences and Arts Western Switzerland (**HES-SO**), the HEIA-FR regularly participates in joint projects with other schools of higher education.

We are also operating **INNOSQUARE**, which provides services to promote collaboration between companies and universities. INNOSQUARE supports project management for research and innovation.

Finally, our in-house Research Services are a founding member of **TechTransfer Fribourg**, an association that brings together the HEIA-FR, the University of Fribourg, the Fribourg School of Management and the Adolphe Merkle Institute.



INNOSQUARE

Design and management of research and innovation projects

www.innosquare.com



Do you have an idea or a project to develop?

recherche-heia@hefr.ch
+41 26 429 68 37

A collaboration model for every need




Research collaborations can take on various forms depending on the objectives of our economic or institutional partners. Both the duration of the project and the partner's expected commitments will vary according to the chosen type of collaboration.

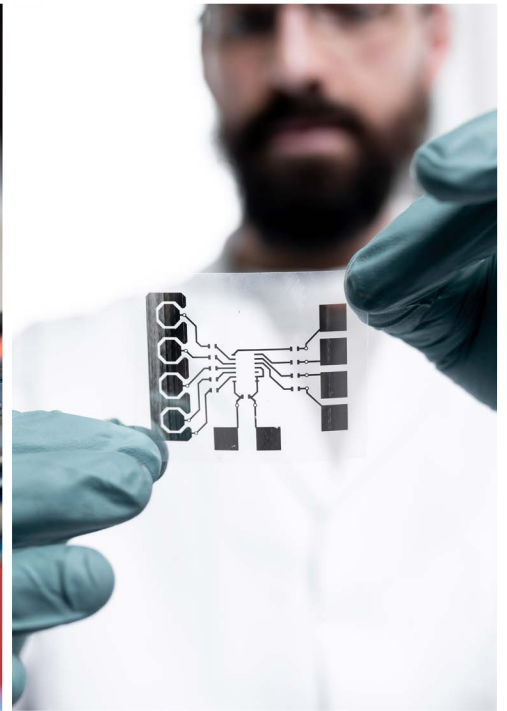
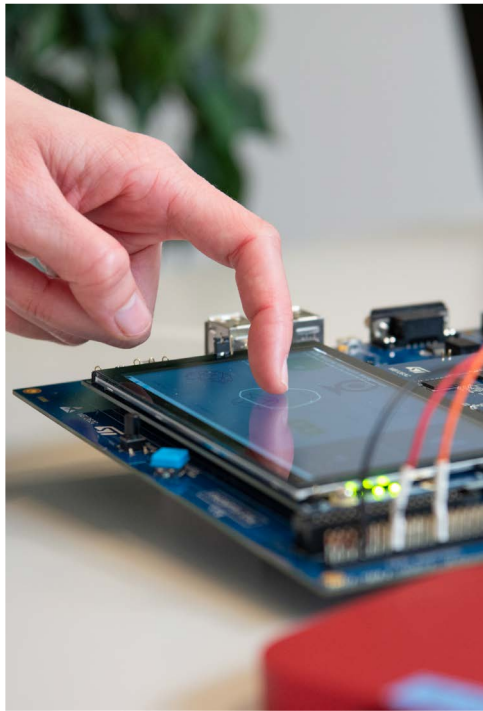
In addition to these partnerships, a range of services, training courses and certification courses offered by the HEIA-FR are open to all economic and public actors (*presentation on pages 24-25*).



« Our ambition is to be as efficient as possible in transforming research results into practical applications. »

*Patrick Favre-Perrod
Deputy Director, aR&D Director*

 Objective	 HEIA-FR's aR&D offer	Commitment of the partner	 Indicative duration
Solve a simple technical problem, test an idea	A student project Semester project, Bachelor's or Master's thesis project	<ul style="list-style-type: none"> ✓ Accompanying the student ✓ Covering the cost incurred by HEIA-FR researchers (if any) 	3-5 months depending on the type of project (semester, Bachelor or Master)
Solve a complex technical problem, perform an assessment or analysis	A research mandate Tailored to your needs	<ul style="list-style-type: none"> ✓ Covering the cost incurred by HEIA-FR researchers 	Variable according to need
Carry out a feasibility study for an innovative idea	A project funded by an Innosuisse innovation cheque (CHF 15'000.- maximum)	<ul style="list-style-type: none"> ✓ Ensure follow up to the study 	2-4 months
Develop innovative products, services or processes	A project funded by Innosuisse	<ul style="list-style-type: none"> ✓ Covering 40-60% of project costs, including 10% in cash and the rest as services 	From a few months to 2-3 years
Take up a technological challenge or create a new value chain in collaboration with several companies	A NRP project supported by the New Regional Policy (NRP) of the Canton of Fribourg	<ul style="list-style-type: none"> ✓ Covering 35 to 50% of project costs, with 20 to 25% provided in cash and the rest as services – to be shared between the partners 	From a few months to 2 years
Conduct a project at an international scale	An international project Horizon Europe, Interreg or Eurostars	<ul style="list-style-type: none"> ✓ Actively participating in the project ✓ Covering a part of the costs or services ✓ Collaborating with the partners 	One or several years



Continuing Education

Continuing education as a way of life

Whether for professional development or as a form of personal enrichment, continuing education is integral to leading an active life. The HEIA-FR, its institutes and centers of competence offer a rich selection of continuing education courses.



Certification courses

Discover the
CAS, DAS & MAS:

go.heia-fr.ch/en/ce

Buildings
DATA SCIENCE
Organization Inkjet
BIM Planning
Railway Engineering ENERGY
CONSTRUCTION Hydrogen
Environment Expertise
Earthquake Engineering



Would you like to learn more?

formation.continue-heia@hefr.ch
+41 26 429 66 06 / +41 26 429 65 98

Programs offered by the aR&D (non-exhaustive list)

The teams of several institutes and centers of competence are involved in training courses for professionals. They can also create custom-designed programs on specific subjects, at the request of companies.

Existing courses
Custom-designed courses
Language

Information and Communication Technologies (ICT)

Digital Society & Health; Interaction Science and Technology		•	E / F / I	HumanTech
Data Science; Machine Learning; Software Engineering; Agile Team Structures		•	F / D / E	iCoSys
EBAS : E-Banking – but Secure! (in collaboration with the Hochschule Luzern)	•		F / D	iSIS
Fribourg Linux Seminar	•		F / D / E	iSIS
Fribourg Cybersecurity Seminar	•		F / D / E	iSIS
Google Developer Group Fribourg (practical workshops)	•		F / D / E	iSIS
Cybersecurity Course for Municipalities and SMEs		•	F / D / E	iSIS
ROSAS Weekly Seminars		•	E	ROSAS

Industrial Technologies

Security and Ecology; Storage and Transport of Hazardous Materials; Measurement Techniques; Stereochemistry; Reaction Mechanisms; Pipes and Metal Frameworks; Practical Training for Operators		•	F / E	ChemTech
Foundation Course: the Inkjet Training	•		E	iPrint
Masterclass on Waveform Development	•		E	iPrint
Masterclass on Inkjet Rheology	•		E	iPrint
Plastic Injection Molding Defects (FSRM course)	•		F	iRAP
The Basics of Plastic Injection Molding (FSRM course)	•		F	iRAP
Design and Dimensioning of Plastic Pieces (FSRM course)	•		F	iRAP
Fundamentals in Upstream Processing Training Course	•		E	BCC
Fundamentals in Downstream Processing Training Course	•		E	BCC
Training as Pharmaceutical Industry Operator (PIO)	•		F	BCC
Aseptic work methods and new guidelines in Annex 1 of Good Manufacturing Practices (EU-GMP Annex 1 revision)	•		F	BCC

Construction and the environment

Short course: Uncertainty Quantification, Reliability and Sensitivity Analyses applied to Geotechnics and Structures	•		E	iTEC
Symposium: Numerics in Geotechnics and Structures	•		E	iTEC
Pipeline Hydraulics	•		F / D	iTEC
BFUP – High Performance Fiber Reinforced Concrete – Study Day	•		F / D	iTEC

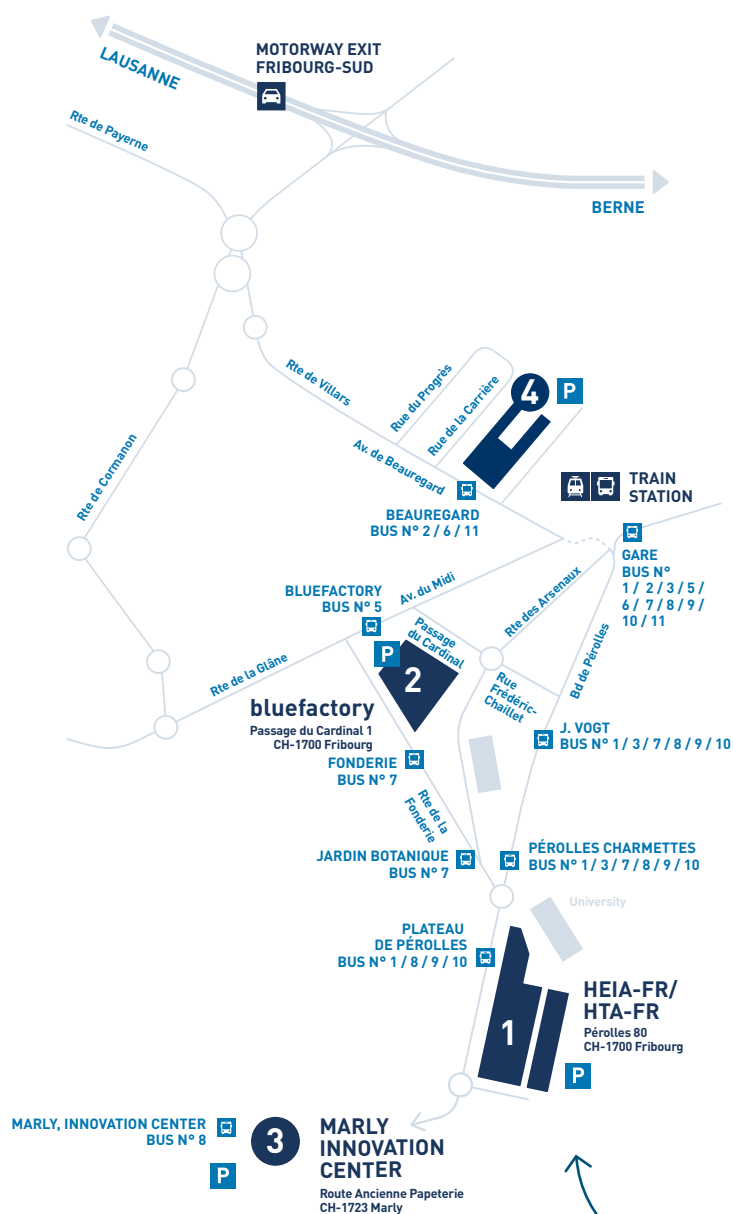


Do you need tailor-made training?

The institutes and centers of competence are at your disposal to organize a training course on request. Please contact the one that covers your area of expertise.

Location and contact

The HEIA-FR is located on the Plateau de Pérolles campus in the city of Fribourg. Our aR&D activities also take place in the bluefactory innovation district and at the Marly Innovation Center (MIC).



1 HEIA-FR / HTA-FR

ChemTech
ENERGY
HumanTech
iCoSys
iSIS
iTEC
SeSi

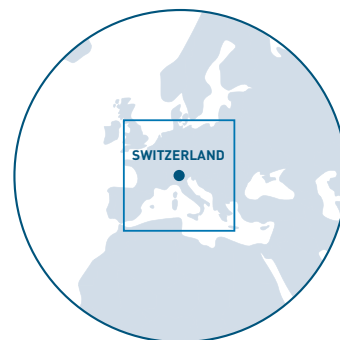
2 bluefactory


BCC (Halle bleue)
ENERGY (Halle bleue)
iRAP (Halle 1)
iSIS (Halle bleue)
ROSAS Center (Halle bleue)
Smart Living Lab (Halle bleue)
TRANSFORM (Halle bleue)


3 MIC

iPrint


4 Beauregard



 [linkedin.com/school/heiafr](https://www.linkedin.com/school/heiafr)

 [instagram.com/heiafr](https://www.instagram.com/heiafr)

 [facebook.com/heiafr.htafr](https://www.facebook.com/heiafr.htafr)

 [youtube.com/eiafr](https://www.youtube.com/eiafr)



**School of Engineering and
Architecture of Fribourg
(HEIA-FR)**

Bd de Pérolles 80
CH-1700 Fribourg
+41 26 429 66 11
info@hefr.ch



bluefactory

Pass. du Cardinal 1
CH-1700 Fribourg



**Marly Innovation Center
(MIC)**

Rte de l'Ancienne Papeterie 106
CH-1723 Marly

Impressum

PHOTOGRAPHS

DNA-Studios

Jo Bersier

STEMUTZ

HEIA-FR

MIC

©10.2024 – Communication Service
School of Engineering and
Architecture of Fribourg (HEIA-FR)

