

SNSF-Projects for visiting Researchers from Ukraine at Bern University of Applied Sciences

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School of Health Professions

Project	Development of caring communities for long-term care at home
Webpage	http://www.nfp74.ch/en/projects/healthcare-at-home/project-kaspar
Description	Caring communities will be established in “living labs” at three different locations in German-speaking Switzerland. Although they will work independently, they will exchange experiences on a regular basis. Kick-off events will be held to encourage the participation of members from the local care community, local politicians, as well as patients, relatives and the civil society. First, a common typology of home care needs will be drawn up. Using co-creative methods, innovative models and offers will then be developed, implemented and evaluated locally. Technology solutions will be introduced as and when needed. Finally, the insights gained will be condensed into a message designed to inspire other interested stakeholders.
Institute	-
Research Focus	social and health sciences (e.g. anthropology, nursing, sociology, public health, social work, ...) with a focus on health and social care, care relations in communities, aging, age-friendly cities and communities, participatory (action) research
Contact	Heidi Kaspar, heidi.kaspar@bfh.ch

Business School

Project	Digital Health Innovation
Webpage	https://data.snf.ch/grants/grant/187356
Description	Daniel Hürlimann and Michael Marti are examining the legal framework connected to the project. On the one hand side, they are analyzing the existing approaches for regulators appropriate to highly innovative fields. This part of the work is not country specific. On the other hand side, they are investigating the drivers and barriers in the Swiss legislation for digital health innovation to happen. Eventually, they will provide an assessment of both and give suggestions on how it might be improved.
Institute	Digital Technology Management
Research Focus	Law
Contact	Daniel Hürlimann, daniel.huerlimann@bfh.ch

Project	A Mixed-Methods Inquiry into Social Entrepreneurs' Crowdfunding Campaigns: How do Social Entrepreneurs Persuade Backers Through Verbal and Visual Communication?
Webpage	https://data.snf.ch/grants/grant/200963
Description	This research project examines the success factors of social crowdfunding campaigns. Specifically, it looks at how social entrepreneurs try to convince potential funders to support their social ideas and projects through crowdfunding campaigns. The project uses a mixed methods approach combining qualitative research, Big Data analysis, and experimental research.
Institute	Institute Innovation & Strategic Entrepreneurship (Prof. Pascal Dey) & Institute Applied Data Science & Finance (Prof. Christian Hopp)
Research Focus	business management, entrepreneurship, sociology
Contact	Pascal Dey, pascal.dey@bfh.ch Christian Hopp, christian.hopp@bfh.ch

School of Agricultural, Forest and Food Sciences HAFL

Project	Optimizing lipid production and in-situ extraction in biofilm immobilized microalgae
Webpage	https://data.snf.ch/grants/grant/198750
Description	Microalgal lipids are amongst the most promising feedstocks for renewable and sustainable aviation fuel synthesis, however mass production is not yet commercially viable and is still some way from being carbon neutral. Low cell densities in phototrophic microalgae cultivation on CO ₂ as carbon source lead to low lipid productivities and high costs and energy expenditures for harvesting and downstream processing. The overarching goal of this project is to develop a process concept that tackles these challenges from several points of action and includes the following prospects: (i) The immobilization of microalgal cells in a biofilm to omit harvesting of microalgal biomass from low density suspensions; (ii) The optimization of the light environment of the culture; (iii) The creation of a nitrogen gradient in the biofilm to enable biomass production in the nitrogen rich zone and simultaneous lipid accumulation in the nitrogen depleted zone; (iv) The application of pulsed electric field (PEF) treatment directly in the biofilm to permit online extraction of lipids; and (v) The engineering of the microalga to facilitate cellobiose utilization and co-culturing with a cellulolytic fungus to enable the carbon efficient use of low-cost lignocellulosic biomass as additional substrate.
Institute	-
Research Focus	Bioprocess engineering, Biotechnology, Microbiology
Contact	Michael Studer, michael.studer1@bfh.ch
Project	Change in grassland functional composition
Webpage	https://data.snf.ch/grants/grant/185110
Description	Drought severity is expected to increase with climate change as extreme weather events become more 'extreme'. Increasing evidence suggests that land-use intensification may undermine grassland resistance to drought because nutrient addition and seeding promote plant species with resource-acquisitive traits at the expense of species with resource-conservative traits. Less drought-tolerant, resource-acquisitive species are increasingly encroaching and degrading semi-natural meadows which are high-priority reserves for biodiversity in Switzerland. The question of whether this undesirable increase in resource-acquisitive species

	will be exacerbated by short ‘flash’ droughts or offset by very long extreme droughts in the future, is unresolved.
Institute	-
Research Focus	plant ecology
Contact	Andreas Stampfli, andreas.stampfli@bfh.ch

Bern Academy of the Arts HKB

Project	Italian provincial theatre and the Risorgimento
Webpage	https://www.hkb-interpretation.ch/projekte/feltre-e
Description	This research project is focused on the theatre in Feltre (Veneto) from 1797 to 1866 – thus at the time when the Hapsburgs governed Veneto, up to the time of Italian independence. The Feltre Theatre is of great significance as an object of research. First, because it is one of the few places where original scenic materials have survived from the 19th century. Secondly, because as one of the innumerable Italian “provincial” theatres of the 19th century, its unusual wealth of source materials about the theatre business, repertoire and administration means it bears testimony to a vibrant tradition of theatrical practices that have remained little investigated to the present day. In 19th-century Italy, city theatres were one of the few places where groups of people could gather together, and where events could take place at which public opinion could be shaped, monitored and steered. For this reason, the Feltre Theatre is also of immense interest as a centre of opinion-making and of socio-political organisation.
Institute	Interpretation
Research Focus	performance studies, literature studies, history of art, musicology, social history, informatics (data base structures)
Contact	Annette Kappeler, annette.kappeler@hkb.bfh.ch
Project	Performance: Conservation, Materiality, Knowledge
Webpage	https://performanceconservationmaterialityknowledge.com/
Description	This research focuses on the questions of conservation of performance-based works, their temporal specifics, the involvement of the human and non-human body, the world of their extended trace history, memory, and archive. Explored are notions of care, the ideals of traditional conservation and their relations to tacit or explicit knowledge, skill and technique. Taking as a starting point the necessity for conservators to access and deepen this area of study, and unlike queries that situate these questions within other disciplines, in this project, we approach performance as a necessarily conservable form.
Institute	Materiality in Art and Culture
Research Focus	Conservation, Museology, Material Culture, Art History of the 20th and 21st Century
Contact	Hanna Hölling, hanna.hoelling@hkb.bfh.ch
Project	Activating Fluxus
Webpage	https://www.hkb.bfh.ch/de/forschung/forschungsbereiche/institut-materialitaet-in-kunst-und-kultur/
Description	This research investigates object, events, scores and ephemera that emerged in the spirit of Fluxus in 1960s–70s in Switzerland, Europe, UK and the US. Inherently fluctuating by definition, Fluxus rejects a stable, material form. Considering the transitory aspects of Fluxus forms not destined for preservation, and looking through a multidisciplinary lens of conservation, art history, performance studies,

	heritage studies and museology, our project advances novel strategies for activating Fluxus through the reconstruction, adaptation and the artistic reinterpretation of Fluxus forms.
Institute	Materiality in Art and Culture
Research Focus	Art History of the 20th century (with focus on the European and US post war avant-garde), Museology, Material Culture, Conservation
Contact	Hanna Hölling, hanna.hoelling@hkb.bfh.ch
Project	Settings of Dying
Webpage	https://sterbesettings.ch/en/
Description	A growing interest into subjects related to the end of life, dying and death can be observed across various sectors of Western societies. The mainstream media are increasingly reporting on personal experiences with terminal illness and professional palliative care, while scientific research institutions are exploring the same fields. Our inter-disciplinary project combines a range of scholarly methods and approaches to create an innovative take on institutionalized palliative care.
Institute	-
Research Focus	Nursing science, sociology of religions, cultural studies, practice-based design research
Contact	Corina Caduff, corina.caduff@bfh.ch
Project	Luigi Cherubini and composition training at the Paris Conservatoire as comprehensive teaching practice (ca. 1810–1840)
Webpage	https://www.hkb-interpretation.ch/projekte/luigicherubini
Description	In today's professional music training, music theory and composition classes are hardly related to each other. In the first half of the 19th century, these areas were organically connected. The teaching practice of Luigi Cherubini (1760-1842) is a good example of this. The project examines Cherubini's work in the field of music theory and composition training in Paris at his time (ca. 1810-1840).
Institute	Interpretation
Research Focus	Music theory
Contact	Claudio Bacciagaluppi, claudio.bacciagaluppi@hkb.bfh.ch

School of Social Work

Project	From generation to generation: Family narratives within the context of welfare and coercion
Webpage	http://www.nfp76.ch/en/projects/interventions-and-pathways-in-life/projekt-abraham
Description	Our project investigates the aftereffects of trauma on the descendants of persons subjected to administrative detention, for instance disconnection disorders, heteronomy, powerlessness, violence, abuse, coldness, stigmatization, and social precariousness. We are interested in the coping strategies of the families, institutions, and society. To this effect, we will interview second-generation relatives on their biographies. The insights will be combined with known facts of the directly impacted first generation. To round this off, we would like to learn, from a comparison group, i.e. persons who mainly grew up in children's homes after 1981, how our insights could be applied to current and future practice.
Institute	Institute of Childhood, Youth and Family
Research Focus	Social Work

Contact	Andrea Abraham, andrea.abraham@bfh.ch
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School of Engineering and Computer Science

Project	Cobotics, digital skills and the re-humanization of work
Webpage	https://www.bfh.ch/en/research/research-projects/2020-892-020-929/
Description	The current transformation of industry raises many questions about the evolution of working conditions, particularly for low-skilled workers. If, historically, automation has been synonymous with deskilling, cobots allow a redistribution of tasks between man and machine. The robot can take care of the procedural tasks, while the human takes care of the tasks requiring flexibility, know-how and critical sense, allowing for a revaluation of their work. In order to better understand the ongoing transformation, we propose a multi-disciplinary approach combining social sciences, robotics and computer sciences, focused on the worker's experience. Field studies, user research and testing will be performed in different industrial environments in order to develop a solution based on the worker's needs.
Institute	Institute for Human Centered Engineering (HUCE)
Research Focus	Robotics, Human-Machine Interface, Computer Vision, User Design, Work Psychology, Human Factors in Engineering
Contact	Sarah Dégallier Rochat, sarah.degallierrochat@bfh.ch
Project	Heart Rate Variability, Dynamics and Control During Exercise
Webpage	https://data.snf.ch/grants/grant/185351
Description	The principal aim of the project is to elucidate and better understand the characteristics of HRV during prolonged exercise and to use this knowledge to optimise the design of automatic HR control systems. To achieve this aim, we will investigate changes in HRV in relation to exercise intensity and duration, we will develop dynamics models and controllers for HR, and we will carry out a clinical feasibility study of HR control in patients with neurological impairment following stroke.
Institute	Institute for Rehabilitation and Performance Technology
Research Focus	Control engineering, cardiovascular physiology, exercise science
Contact	Kenneth J. Hunt, Kenneth.hunt@bfh.ch
Project	Probabilistic Intraday Forecasting of Photovoltaic Power Generation for the Swiss Plateau
Webpage	https://data.snf.ch/grants/grant/200654
Description	The installed photovoltaic (PV) power capacity is expected to grow by 300 to 500% in Switzerland until 2035 (Energy Act 2018) and to expand similarly strongly in other European countries (IEA 2019). The intraday forecasts of generated PV power that are in operational use today are mostly based on weather forecast models and tend to produce large forecast errors (Fig. 5), in particular in changeable and cloudy weather conditions. More accurate intraday forecasts of the generated solar power and a better understanding and quantification of the forecast uncertainties are required in order to enable a more cost-efficient solar plant operation and reduce the cost incurred by grid operators and utilities for stand-by and storage capacities as well as suboptimal bidding in the intraday and balancing markets.
Institute	-
Research Focus	Artificial Intelligence, Energy, Operations Research
Contact	Angela Meyer, angela.meyer@bfh.ch

Project	Artificial Intelligence for Improving the Reliability and Resilience of Industrial Fleets
Webpage	https://www.angela-meyer.net/
Description	
Institute	-
Research Focus	Artificial Intelligence, Energy, Operations Research
Contact	Angela Meyer, angela.meyer@bfh.ch
Project	InPercept – System for detection and localization of non-authorized mobile phones in Buildings
Webpage	https://data.snf.ch/grants/grant/198721
Description	In prisons, cellphones are often used by inmates to communicate with the outside world creating a serious problem for public safety. We developed a system for indoor localization of non-authorized active cellphones operating in the 2G, 3G or 4G communication standards. The system is based on a fingerprinting technique of signals from 12 antennas covering the building under surveillance. The fingerprints were extracted from antenna signals using Welch's classical short-term PSD estimator. To obtain relevant fingerprints background noise reduction was performed through spectral subtraction and separation of signals from different cellphones was achieved by k-means clustering. The resulting cellphone specific signals strengths provided relevant fingerprints for a final classification by the Mahalanobis distance. The validation performed in a four-story prison building with over 100 localization cells showed high performance yielding a localization error smaller than 1.8m for the 2G, 3G and 4G communication standards in 70% of all measurements.
Institute	Institute for Optimisation and Data Analysis IODA
Research Focus	Electrical engineering ICT
Contact	Armin Schmidt, armin.schmidt@bfh.ch

Swiss Federal Institute of Sport Magglingen SFISM

Project	DigitalTwin
Webpage	https://www.ehsm.admin.ch/en/areas-of-activity/sporttechnologie.html
Description	The goal of the research project «DigitalTwin» is to increase the efficiency and safety of strength training through the development and validation of biomechanical computer models and mobile measurement methods. The 4-year project is being funded by the Swiss National Science Foundation (SNF) and conducted by the Sports Technology specialist group at the Swiss Federal Institute of Sport Magglingen (SFISM).
Institute	Sports Technology specialist group
Research Focus	Biomechanics, Sports Technology, SmartTech, Computer Science, Strength Training
Contact	Silvio Lorenzetti, silvio.lorenzetti@baspo.admin.ch Katja Oberhofer, katja.oberhofer@baspo.admin.ch
Project	Understanding and promoting mental health of competitive athletes
Webpage	https://www.ehsm.admin.ch/en/areas-of-activity/sportpsychologie/mentale_gesundheit_im_leistungssport.html
Description	Mental health (MH) means both the absence of psychiatric symptoms and the presence of well-being (WB). The current research project aims to learn more about

	the MH of competitive athletes in Switzerland. Athletes have to deal with the same challenges as everyone else. However, they are additionally confronted with conflicts between sport and other areas of life (i.e., life-sport conflicts) as well as sport-specific stressors, which can endanger MH. Such sport-specific stressors include injuries, transitions from junior to senior level, or major sports events. In addition, some athletes are perfectionistic in an unhealthy way, which increases their risk of impaired MH.
Institute	Sport Psychology
Research Focus	sport psychology, health psychology, mental health, statistical methods, ambulatory assessment
Contact	Philipp Röthlin, Philipp.Roethlin@baspo.admin.ch