



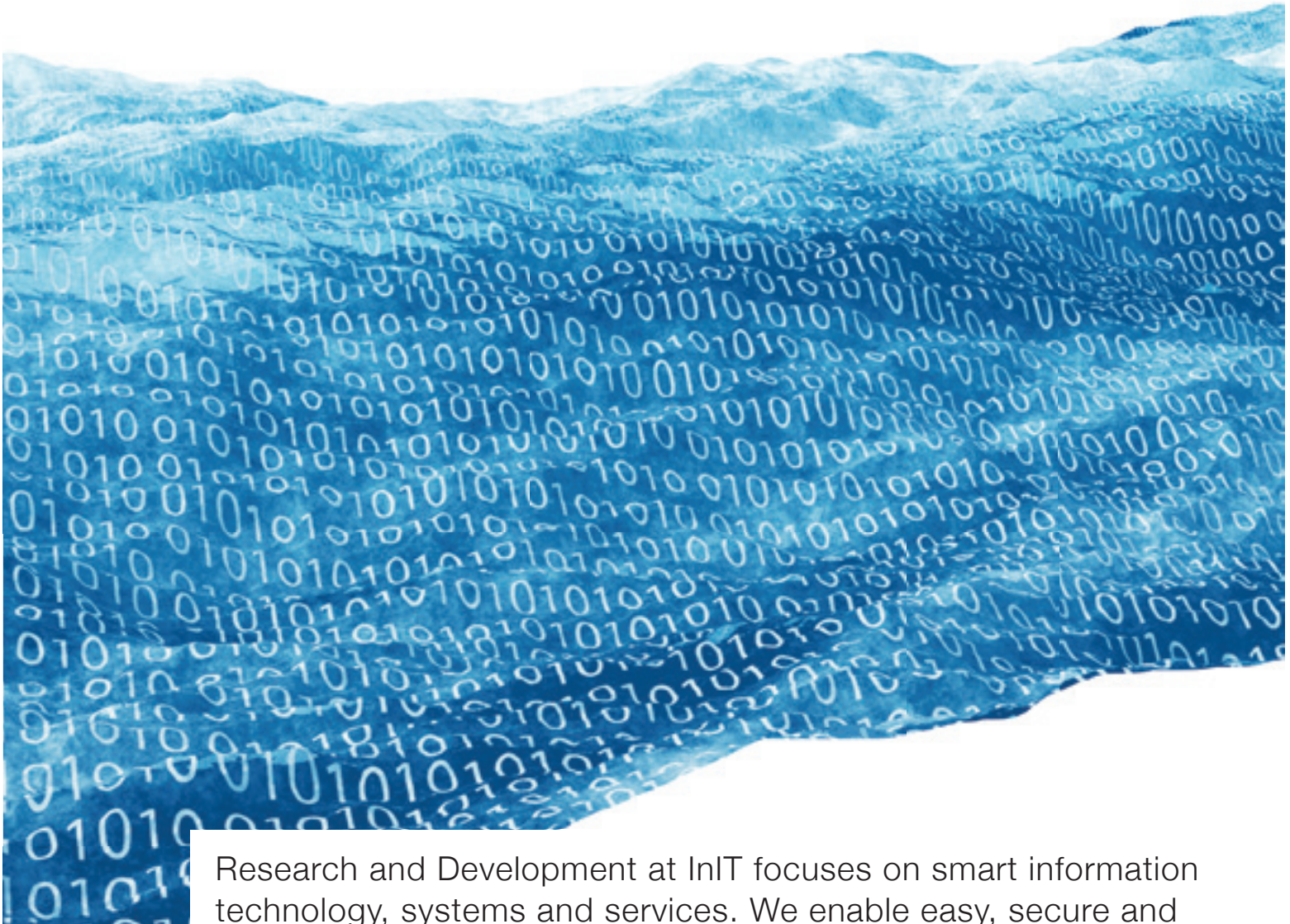
School of
Engineering

Institute of Applied
Information Technology (InIT)



We ride the
information wave

Institute of Applied Information Technology (InIT)



Research and Development at InIT focuses on smart information technology, systems and services. We enable easy, secure and smart access to information at any time.

InIT offers a wide spectrum of competences in the field of distributed information systems, structured into five focus areas. The research groups in these focus areas work on innovative R&D projects in collaboration with industries and provide services. In addition, InIT operates several labs. The labs integrate competences of one or more research groups on selected topics, and establish the basis of cooperation with other institutes. They allow a unified approach to R&D projects and services to industrial partners.

Our 5 Focus Areas

Distributed Software Systems The research group is engaged in development of distributed systems and integration of information in distributed systems, with a specialization in the following topics:

Information and Application Integration is concerned with the development of distributed systems on desktops, servers and mobile platforms, and of architectures and technologies that integrate information in complex application environments. In particular, we investigate and design efficient and scalable software systems and we develop software and algorithms to aggregate and evaluate data from social media.

Software Engineering is concerned with the development of heterogeneous software systems while following good engineering practices. State-of-the-art principles, methods and tools for software development are applied, examined with respect to their usefulness in operational contexts, and adapted as necessary. We have a broad know-how in the areas of testing and test automation, agile software development and model-driven software engineering.

Human Information Interaction The research group explores the interaction between humans and information, with a specialization in the following topics:

Mobile Usability is concerned with the user-centric development of mobile applications and services that exploit sensors and interaction capabilities of both current and future mobile devices to ensure optimal user value and a high-quality user experience.

ICT-Accessibility is concerned with the accessibility of information for elderly people and persons with special needs. We evaluate and develop corresponding tools for the Web and increasingly in the mobile domain.

Visual Computing is concerned, on the one hand, with the problem of deriving realistic 3D models from pictures that can be used for medical or industrial mixed-reality applications. On the other hand, we explore the development of virtual and augmented reality applications and simulators.

The research group operates the *Mobile Usability Lab*, the *ICT-Accessibility Lab* and the *Visual Computing Lab*.

Information Security The research group is devoted to the security of distributed information systems as well as the security of the information itself. It specializes in the following topics:

Secure Applications and Systems is concerned with the development of secure software and services, with a special focus on web and mobile applications. We investigate and expand methods and tools that allow designing secure software and services and testing them with respect to security. Additionally, we develop novel security mechanisms.

Information Infrastructure Protection is concerned with the protection of both classic and cloud-based IT infrastructures. The goal is early detection of possible attacks as well as detection of past attacks, e.g. by monitoring. Furthermore, we investigate methods and tools in the field of risk assessment and risk engineering for IT infrastructures.

The research group operates the *Security Analysis and Testing Lab*.

Information Engineering The research group investigates how data and information is integrated, analysed, retrieved and made exploitable. The group specializes in the following topics:

Information Retrieval is concerned with all facets of search on unstructured and semi-structured document collections. This encompasses in particular the field of natural language processing, including cross-language retrieval, multimedia retrieval, categorization, topic/trend detection and sentiment detection.

Data Warehousing is concerned with data-driven decision support and the development of data products in an enterprise context (Data Science). A special focus is on the design of complex processes, ranging from the extraction, transformation and loading of transaction-based data records, to the subsequent analysis (data mining) and presentation of results (business intelligence).

The research group is a founding member of the *ZHAW Data Science Laboratory (DataLab)*.

Service Engineering The research group is concerned with innovative information-based services, specializing in the following topics:

Service Engineering is concerned with the systematic customer-centric development of information-based services. The goal is to develop innovative, ICT-based service concepts that are prototyped efficiently, and can be validated in realistic operational contexts. Respective new methods, processes and tools are developed and deployed.

Cloud Computing is concerned with the development and operation of cloud computing infrastructure as the future consumption model for high performance computing (HPC), data-intensive distributed computing and storage (PaaS, IaaS, SaaS).

The research group operates the *InIT Cloud Computing Lab* and the *Service Prototyping Lab*.

Our Labs

ZHAW Datalab

In cooperation with five institutes from three departments, the ZHAW Data Science Laboratory is concerned with all topics pertaining to Data Science and its related technologies, concepts and societal impacts.

ICT-Accessibility Lab

The ICT-Accessibility Lab investigates how to facilitate the use of information and communication technology for elderly people as well as people with special needs, and develops corresponding tools.

InIT Cloud Computing Lab

The InIT Cloud Computing Lab is concerned with research on conceptual and technological advancements of cloud computing infrastructure and platform services as foundations of the future, service-based ICT sector.

Mobile Usability Lab

The Mobile Usability Lab is concerned with present questions on mobile application and service development and offers a wide range of competences, such as development, usability engineering and testing, as well as location-based services.

Security Analysis and Testing Lab

The Security Analysis and Testing Lab investigates methods and tools in the fields of security analysis and manual as well as automated security testing of applications and IT systems.

Service Prototyping Lab

The Service Prototyping Lab is concerned with customer-centric development of IT-based services and offers competences related to all phases of the service development process: customer & context analysis, service innovation, service design, service evaluation, service implementation and operation.

Visual Computing Lab

The Visual Computing Lab integrates competences from image processing and computer graphics in order to leverage technologies from the fields of content-based image analysis, geometrical modelling and virtual and augmented reality for novel application scenarios.

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As one of the leading engineering faculties in Switzerland, the ZHAW School of Engineering emphasises on topics that are relevant now and will be in the future as well. Our 13 institutes and centres guarantee high-quality education, research and development with an emphasis on the areas of energy, mobility, information and health.

We will be happy to help and support you in the new or continued development of your products and services as a competent partner. Please do not hesitate to contact us.