

An aerial photograph of the EPFL campus in Lausanne, Switzerland. The image shows a dense cluster of modern university buildings, green spaces, and a large lake in the background under a cloudy sky. A prominent white rectangular box is overlaid on the center of the image, containing the EPFL logo and the word 'Robotics' in large black font.

EPFL

Robotics



OUTLINE

EPFL at glance

Robotics Education

Robotics Research

EPFL Robotics Initiative

Innovation Booster Robotics

Swiss Robotics Day

Swiss Robotics Association

Q&A

EPFL at glance



14'374

Students



372

Professors



+6'400

Employees
(incl. Phd)



+130

Nationalities



Industrial Innovation in 2023



23

NEW START-UPS
CREATED in 2023



86

PATENTS
FILED



45

LICENCES
SIGNED



470

MCHF RAISED BY
EPFL' START-UPS



126

INVENTIONS
AND SOFTWARE



21.5

MCHF RAISED FROM
INDUSTRIAL CONTRACTS
(DIRECT FUNDING)



11.2

MCHF RAISED FROM
INNOSUISSE PROJECTS



100%

OCCUPANCY RATE AT
EPFL INNOVATION PARK





OUTLINE

EPFL at a Glance

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Education in 2023



14'374

STUDENTS

+5.8% compared to 2021



6'940

BACHELOR STUDENTS

+47% in 10 years



2'412

PHD STUDENTS

+22% in 10 years



1'244

MASTERS DELIVERED

+80% in ten years



3'954

MASTER STUDENTS

+89% in 10 years



92.4%

EMPLOYABILITY

RATE IN CH

EPFL Robotics Curriculum

Acceptance rate in black

Outside of EPFL
230 applicants

11%

PhD in Robotics
2023

13%

Outside of EPFL
348 applicants

7%

Master in Robotics
150 students

SV - Life Sciences
EL - Electrical and Electronic Engineering
IN - Informatics
MT -
PH - Physics
SC - Communication Systems

47%

Microengineering
238 applicants

Mechanical Engineering
23 applicants

43%

SV
5

EL 2

IN 1

Other departments
11 students

45%

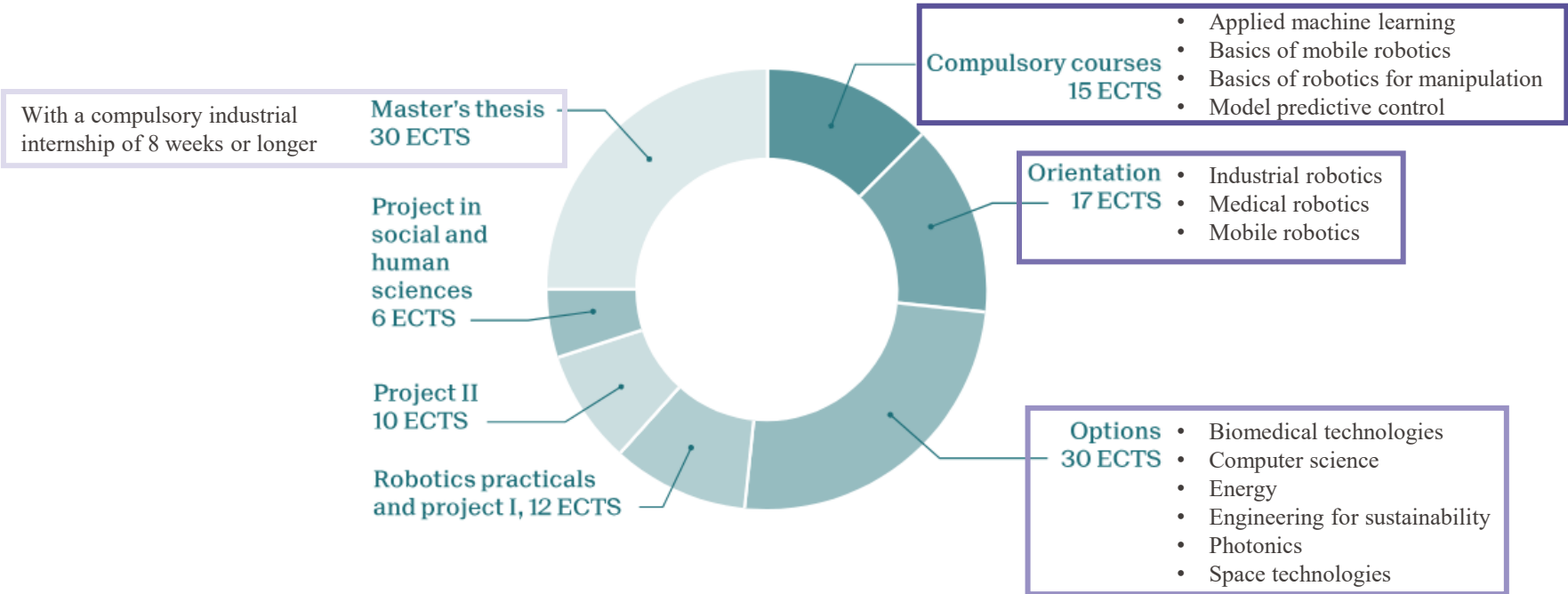
MT 1

PH
1

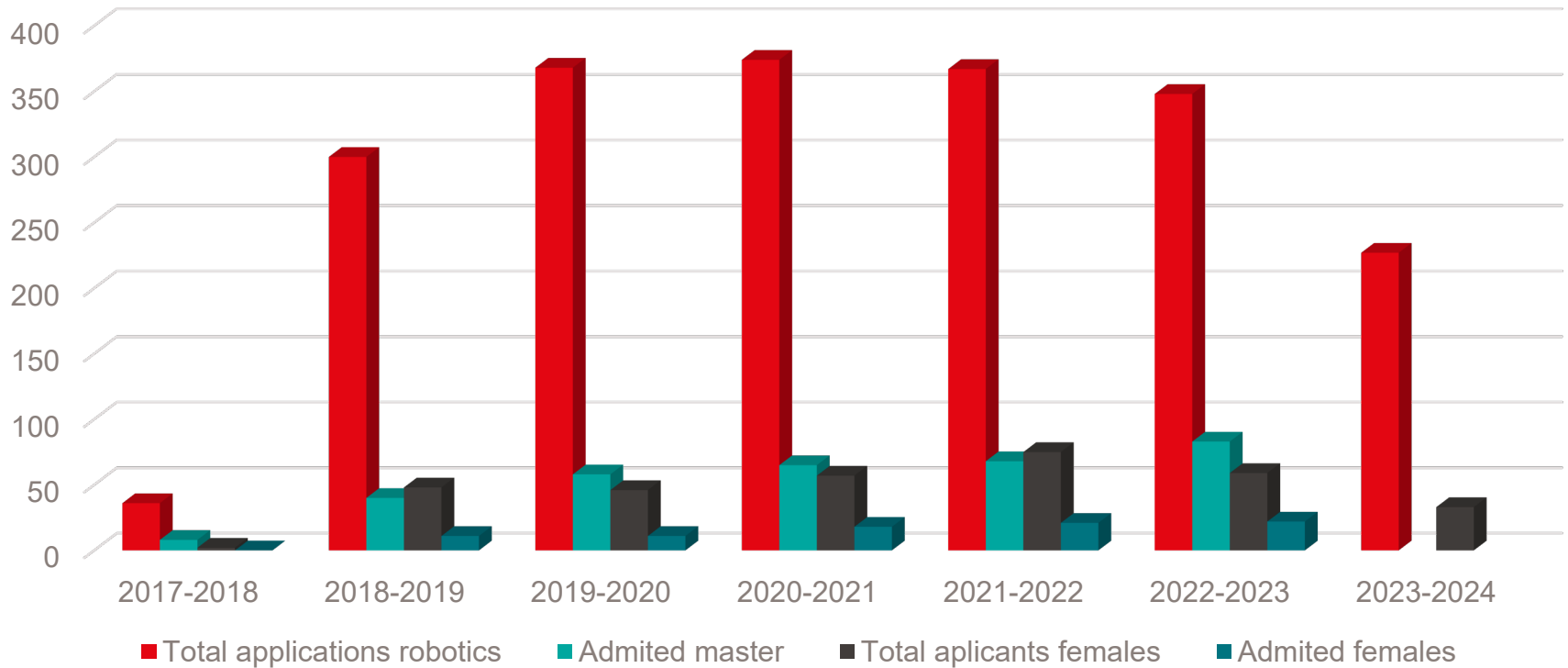
SC 1

EPFL Robotics Master Program

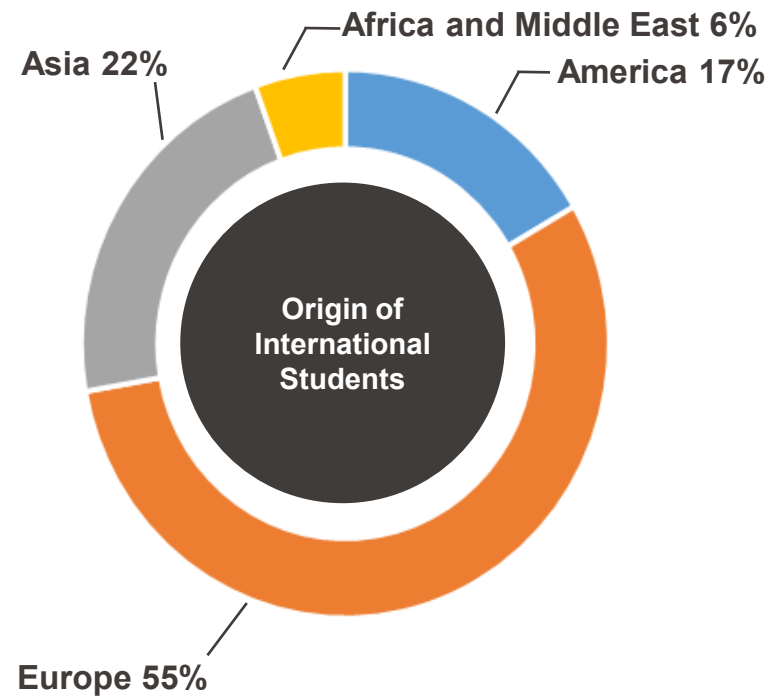
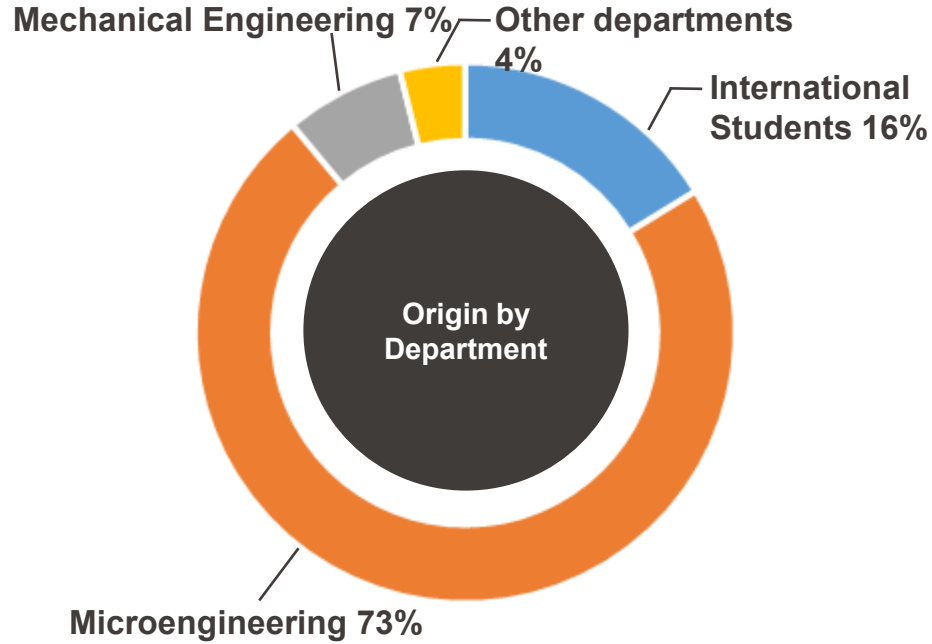
2-year program with 120 ECTS



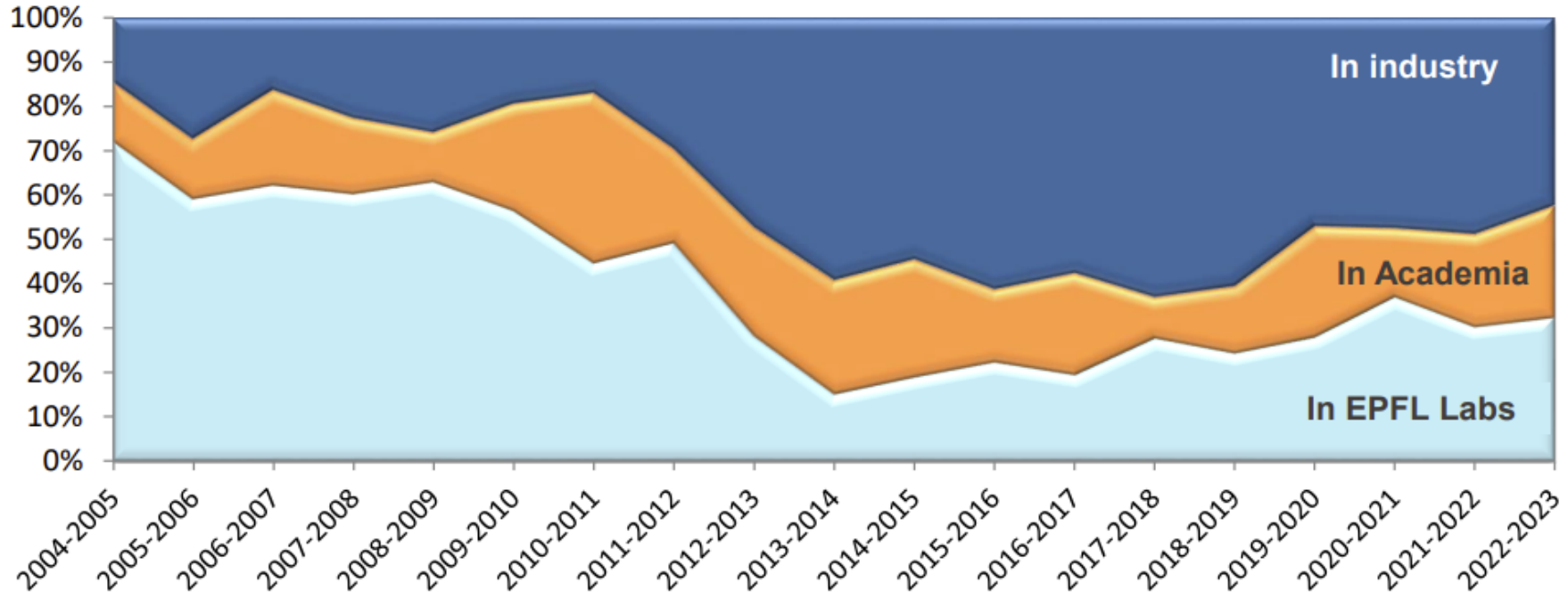
EPFL Robotics Program accepts only 20% applicants



Origin of applicants



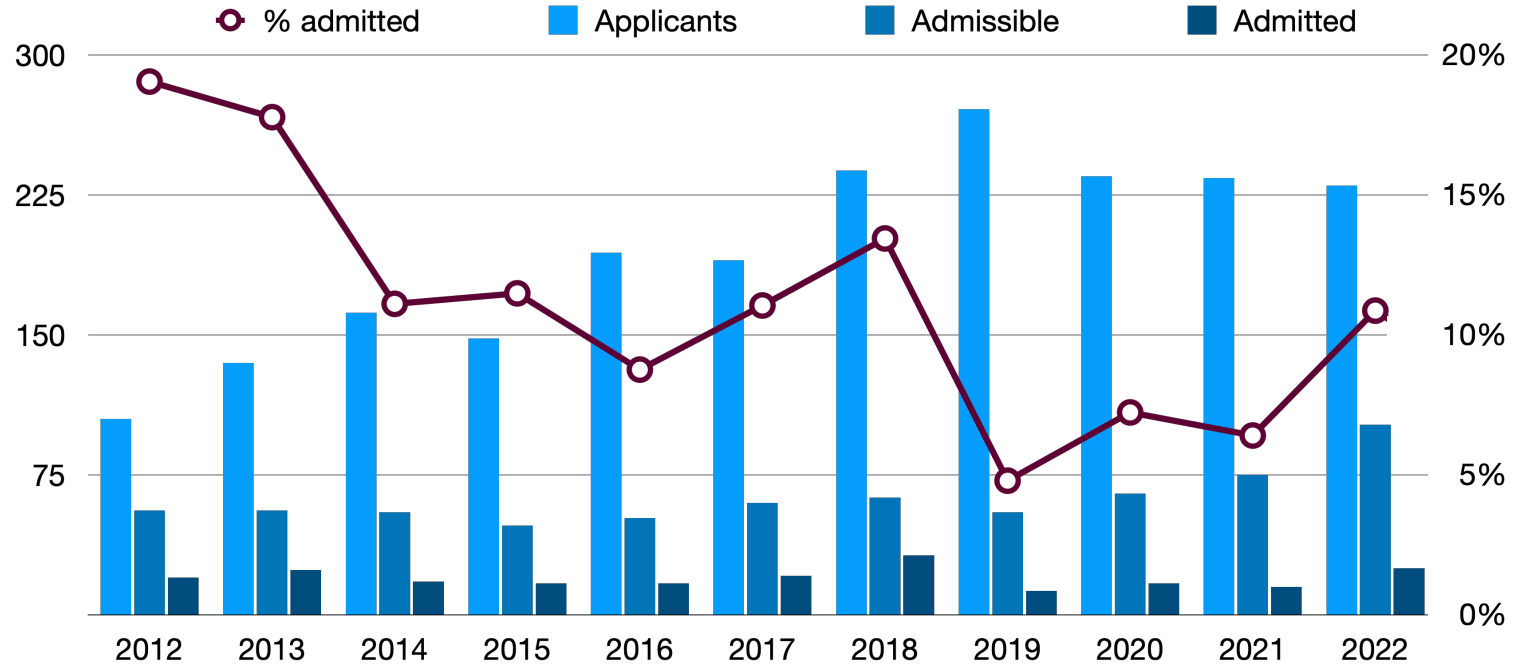
40% of students are industry-oriented



Doctoral program in Robotics (EDRS)

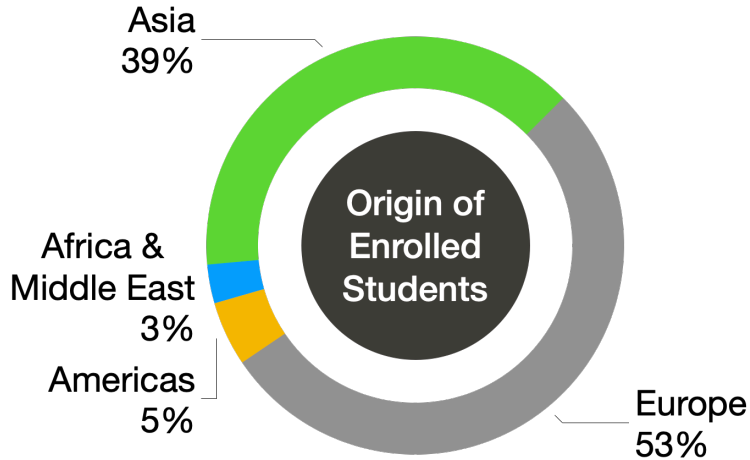


EDRS: Competitive Program



Admission rate : 10% (13% for Female, 9.5% for Male)

EDRS: Diversified Background





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EPFL Robotics labs



+26

labs



+60

Robotics
research
topics



+90

PhD students



+15

International
partnerships



One of the most prominent universities in Europe for robotics research

EduRank BY REGION ▾ BY TOPIC ▾

[Computer Science & Engineering](#) » [Robotics](#) » [Europe](#)


Best Universities for Robotics in Europe

Updated: February 29, 2024 EduRank

Below is a list of best universities in Europe ranked based on their research performance in Robotics. A graph of 2.11M citations received by 136K academic papers made by 466 universities in Europe was used to calculate publications' ratings, which then were adjusted for release dates and added to final scores.

We don't distinguish between undergraduate and graduate programs nor do we adjust for current majors offered. You can find information about granted degrees on a university page but always double-check with the university website.

2. Technical University of Munich

 Germany | Bavaria

For Robotics

#1 in Germany

#9 in the World



Acceptance Rate 46% • Enrollment 44,000 • Male:Female 63:37 • Founded 1868

1. Federal Institute of Technology Lausanne

 Switzerland | Lausanne

For Robotics

#1 in Switzerland

#6 in the World

Enrollment 12,576



3. Swiss Federal Institute of Technology Zurich

 Switzerland | Zurich

For Robotics

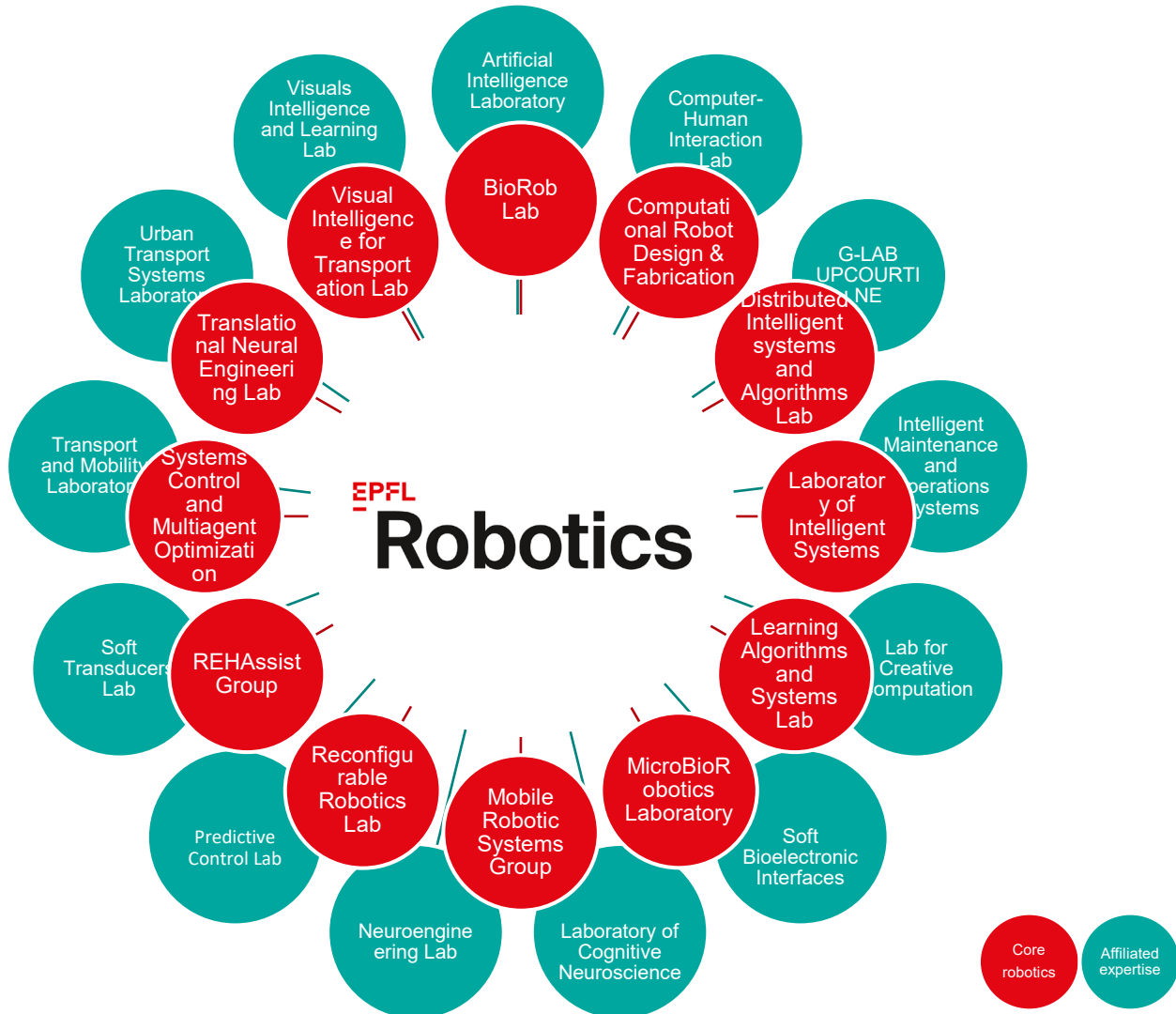
#2 in Switzerland

#12 in the World

Acceptance Rate 8% • Enrollment 23,420

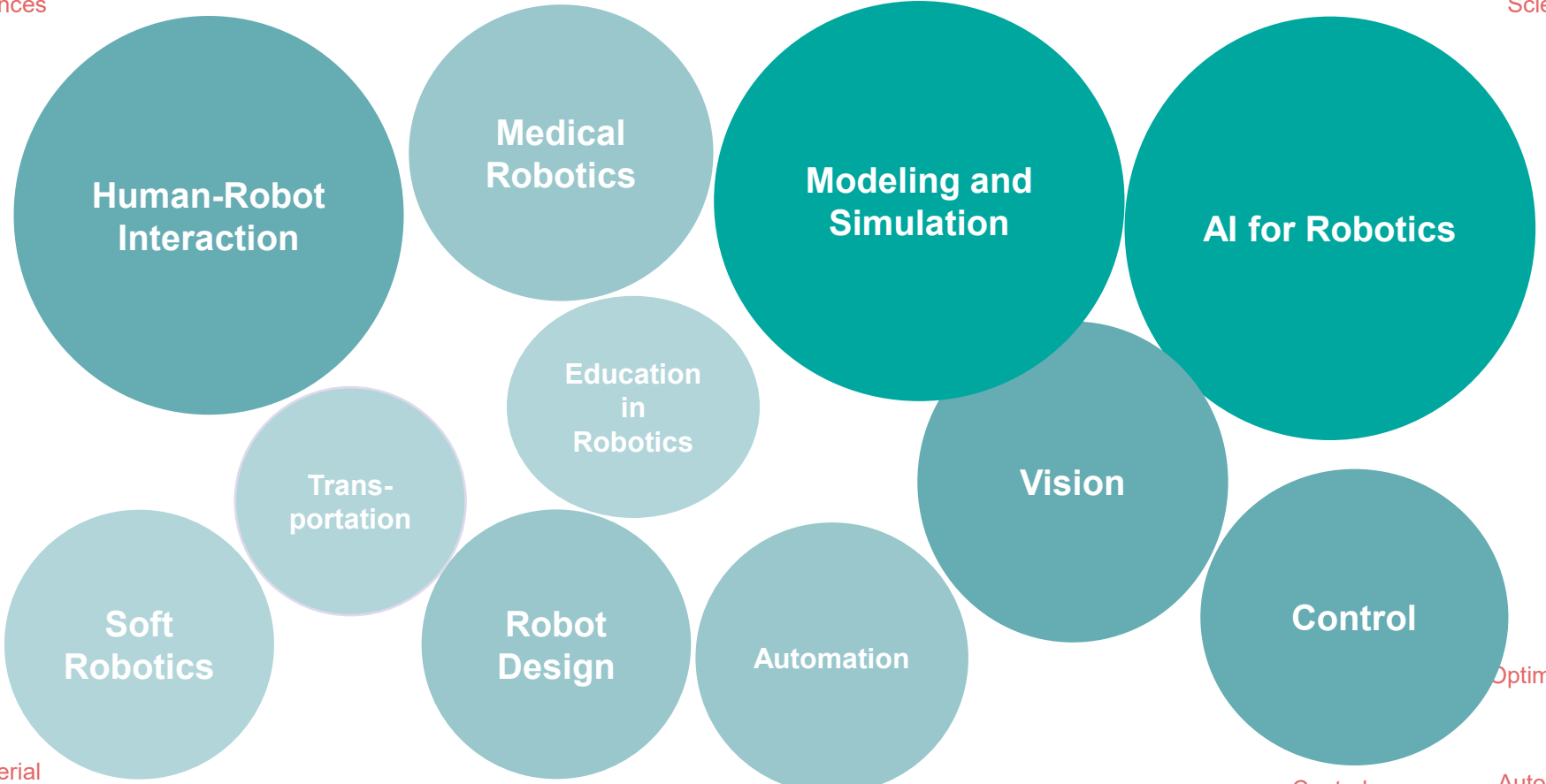


25 Structures with Diverse Research Expertise



Life Sciences

Computer Sciences



Material Sciences

Optimization

Control

Automation



OUTLINE

EPFL at a Glance

Robotics Education

Robotics Research

- **Core Labs**
- Involved Labs

EPFL Robotics Initiatives

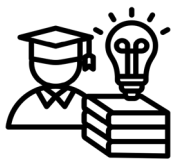
Innovation Booster Robotics

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Q&A

Core Labs by Staff



13

Professors



90

Ph.D. Students



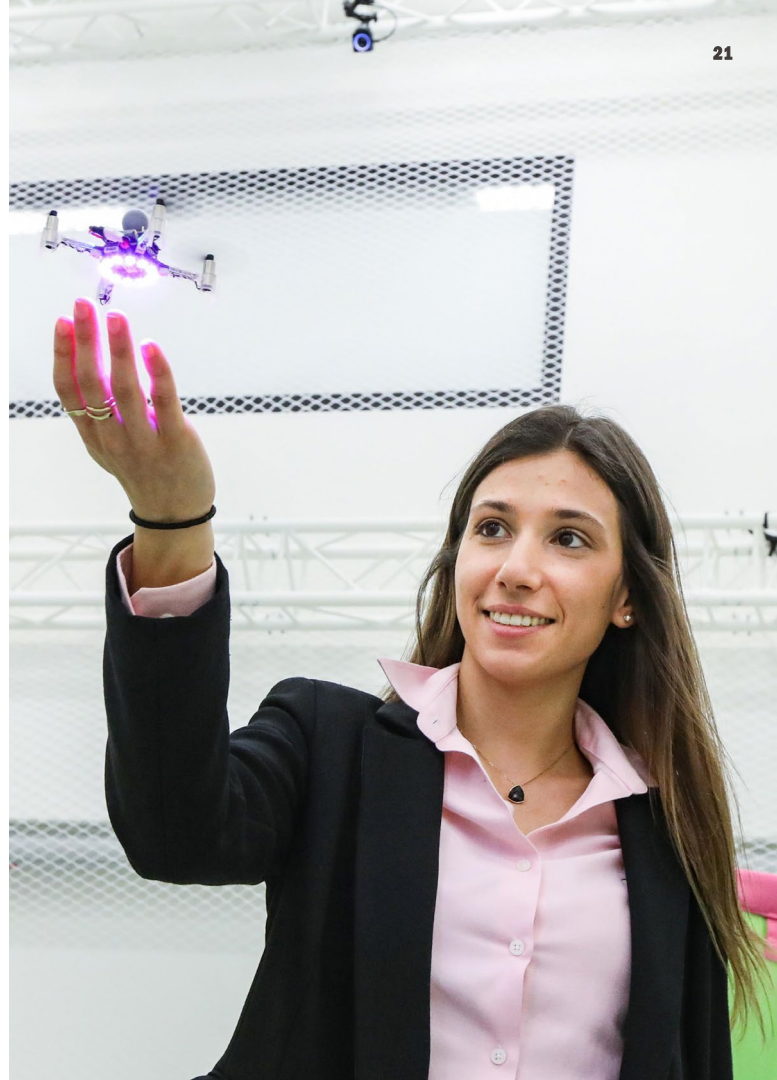
33

Postdoctoral
Researchers

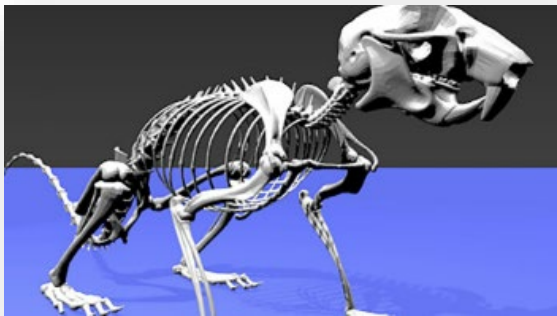


27

Scientists
and Engineers



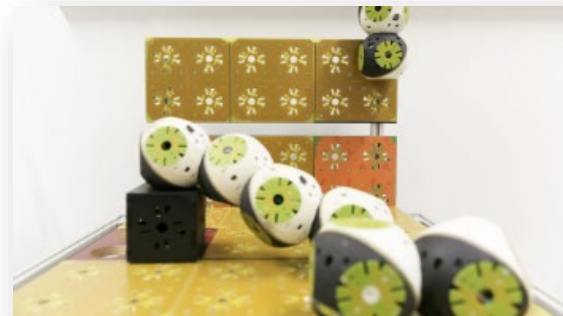
Neuromechanical Simulations



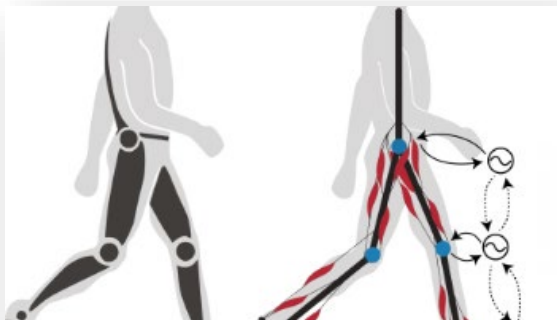
Amphibious Robotics



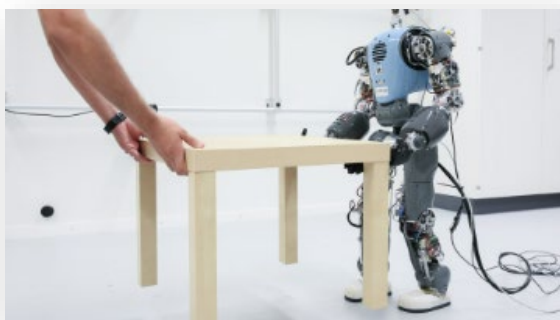
Modular Robotics



Rehabilitation Technologies



Humanoid Robotics



Quadruped Robotics



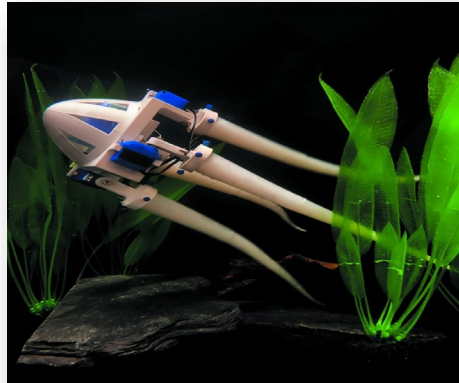
Robotic manipulation



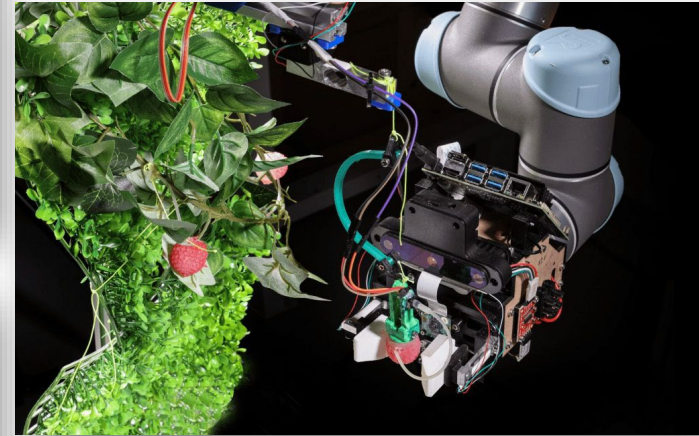
Robots in nature/sustainability



Soft body-fluid interactions



Robot 'Scientist'

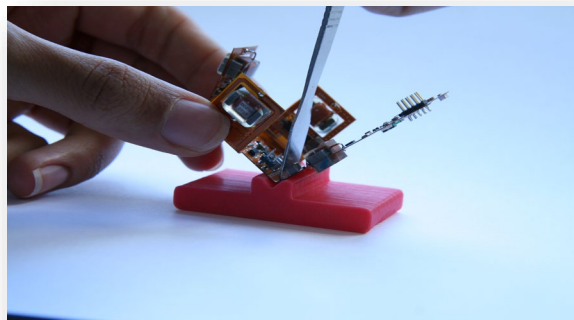


Distributed Intelligent Systems and Algorithms Laboratory (DISAL)

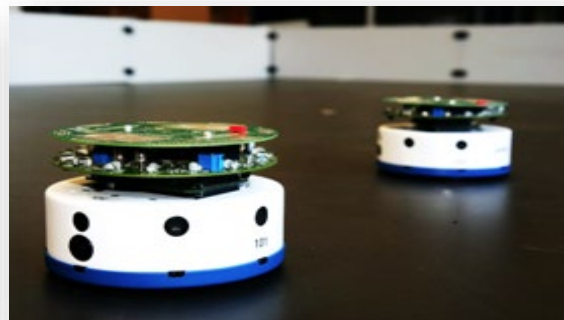
Social Robotics



Assembly and Manipulation



Distributed Learning and Optimization



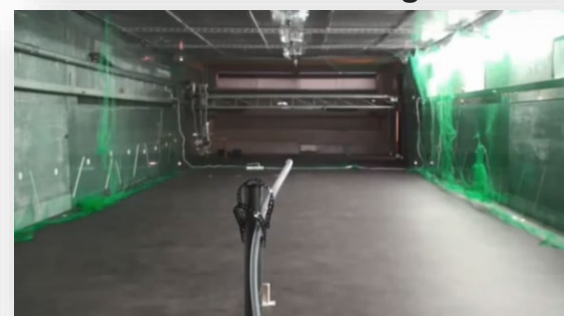
Intelligent Vehicles



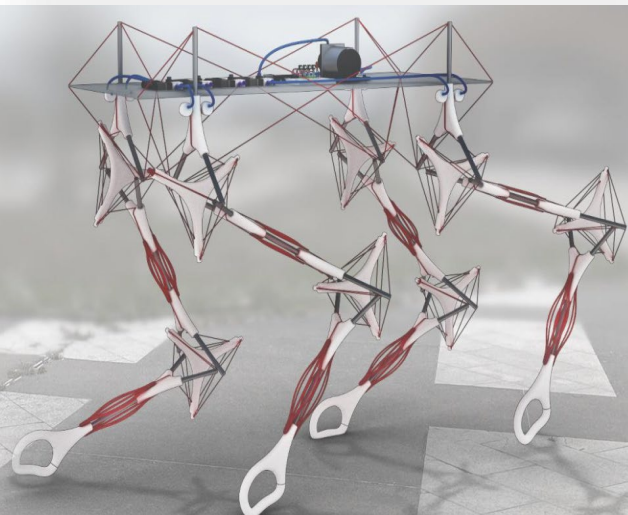
Robotic Sensor Networks



Localization and Navigation



Soft Robotics



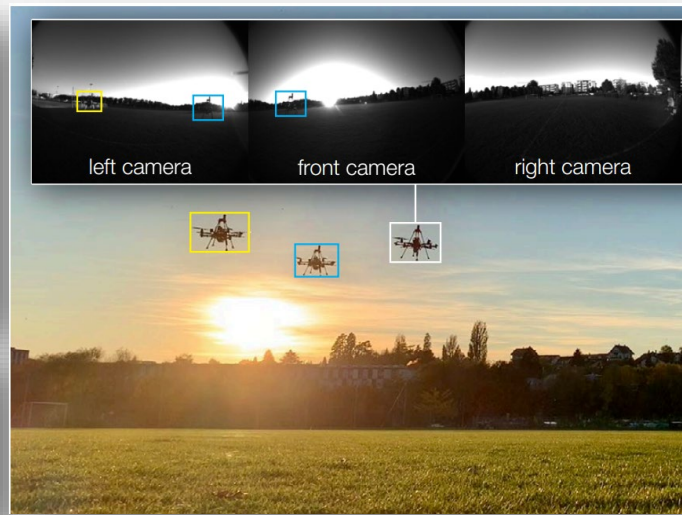
- Edible Robotics
- Tensegrity Structures
- Medical Robotics

Aerial Robotics



- Avian-Inspired Robots
- Multi-Modal Robots

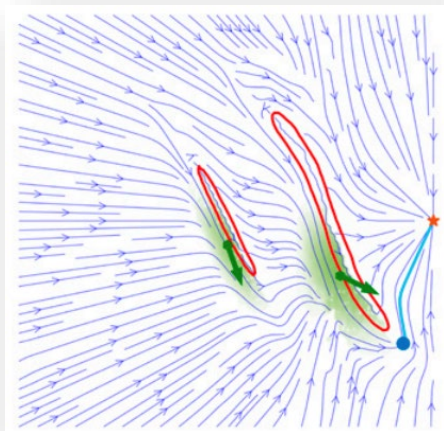
Drones



- Control
- Human-robot interaction



Development of novel machine learning algorithms



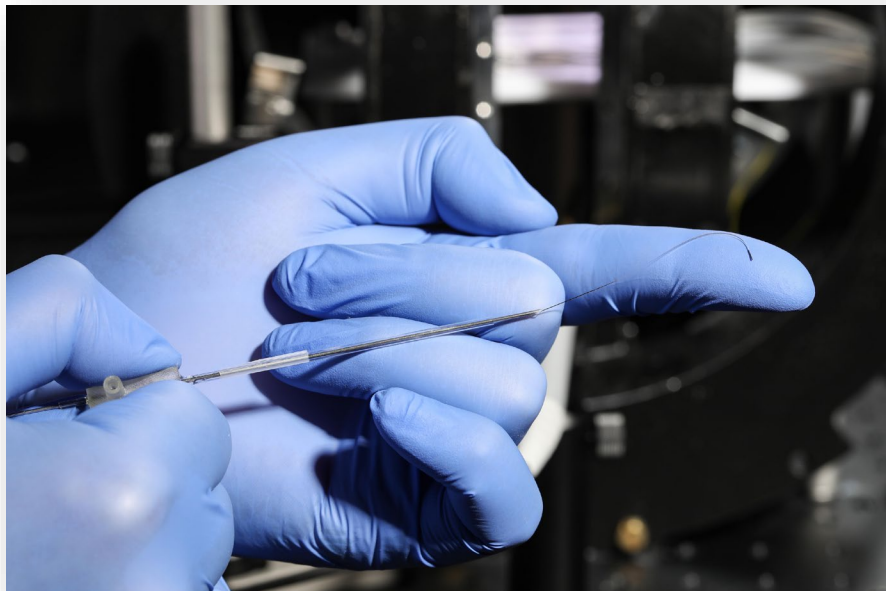
Algorithms for human-robot interaction



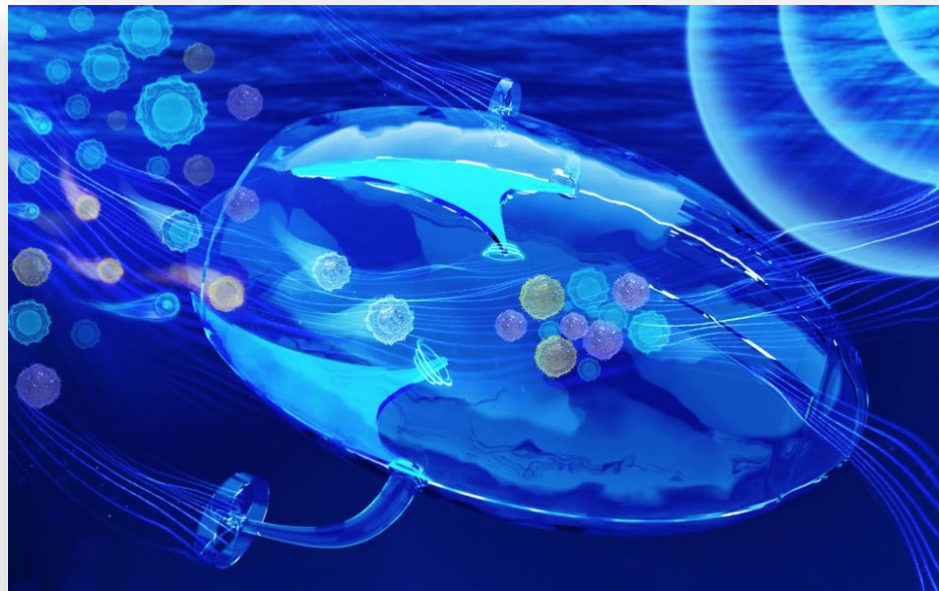
Human motion modelling



Development of next-generation microrobots



Discovering mesoscale physical principles of biological self-organization



Animal-robot interactions



- Interspecies coordination mediated by biohybrid robots
- Modulating and modelling collective behaviour in fish
- Group-level modulation of honeybee behaviour by biohybrid robots

Educational robotics



- Promoting digital education and equity
- Scaling educational reforms and professional development
- Teacher training and support



Director: Francesco Mondada

Origami Robotics



- **Multiscale Interactive Origami Robotic Surface (MIROS)**
- **Electromagnetic Actuation Design for Distributed Stiffness**
- **Modular Origami Robots**
- **Foldable Composite Robots**
- **Adjustable Stiffness Structures**
- **Virtual Reality Interfaces**

Soft Robotics



- **Soft Reconfigurable Surface (SRS)**
- **Vacuum-Powered Soft Robots**
- **Soft Actuator Packs for Human Augmentation**
- **Modeling and Design of Soft Pneumatic Actuators**
- **Soft Pneumatic Skin (SPA-Skin)**

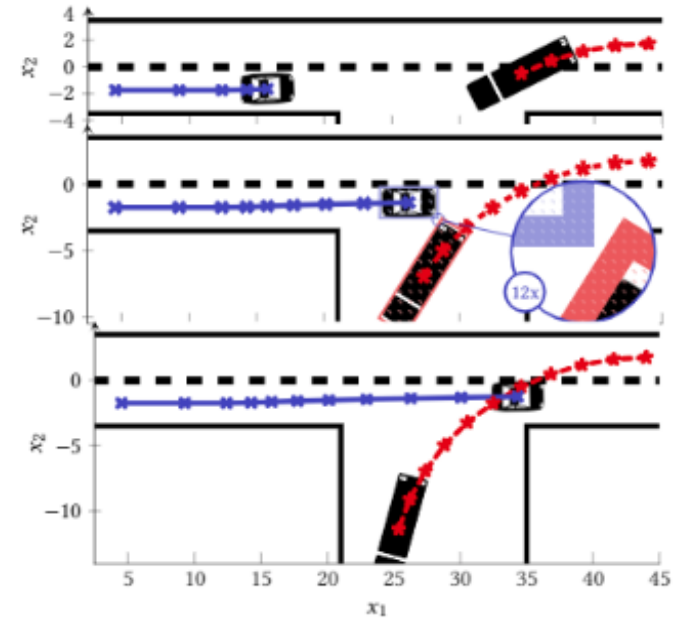


Systems Control and Multiagent Optimization Research (Sycamore)

Safe Learning



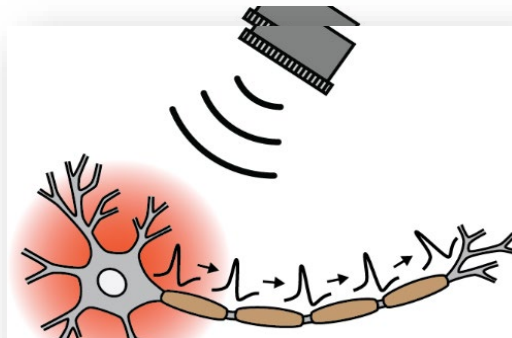
Stochastic and distributed control



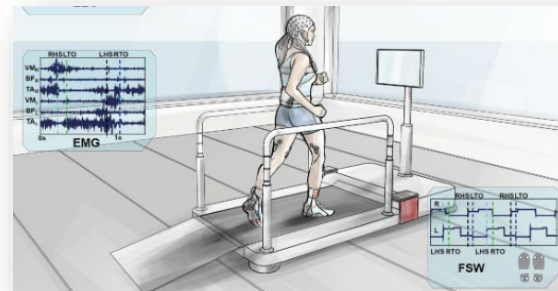
Neuro-Muscular Electrical Stimulation



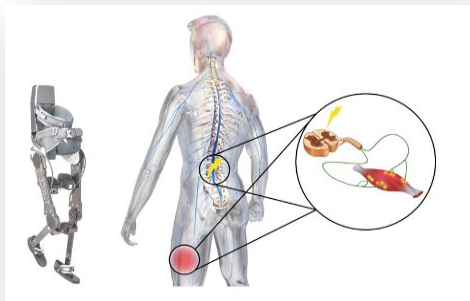
Ultrasound Neuromodulation



Mobile Brain/Body Imaging for Rehabilitation



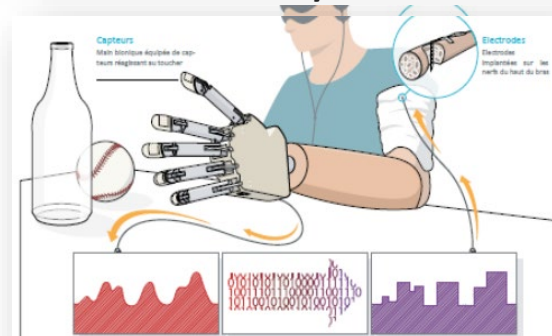
Hybrid Strategies: Neuromodulation and Exoskeletons



Prosthesis Control



Tactile sensory feedback



Director: Silvestro Micera



Visual Intelligence for Transportation (VITA)

Perception, Prediction, and Planning



Social Forecasting

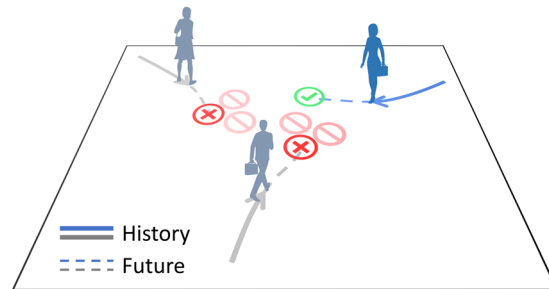


Perceiving



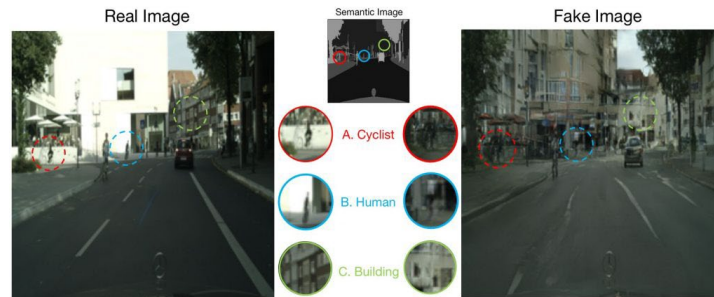
Planning

Distribution Shifts



✔ Ground truth
 ✘ Collision
 ⊘ Discomfort

Generative Models



Director: Alexandre Alahi



OUTLINE

EPFL at Glance

Robotics Education

Robotics Research

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- **Involved Labs**

EPFL Robotics Initiative

Innovation Booster Robotics

Swiss Robotics Day

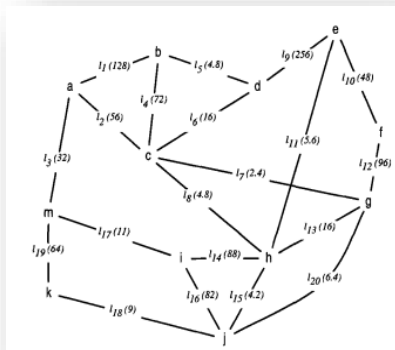
Swiss Robotics Association

Q&A

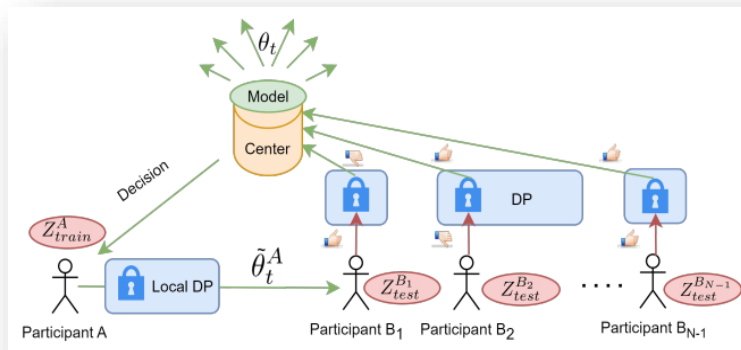
Game Theory for Data Science



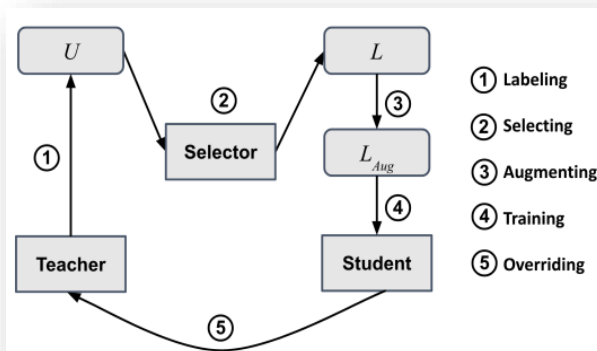
Intelligent Agents



Federated Learning and Privacy-preserving AI



Natural Language Processing



Director: Boi Faltings

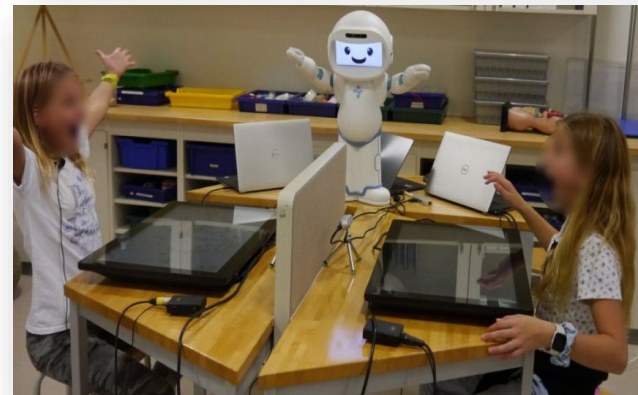
Modest computing

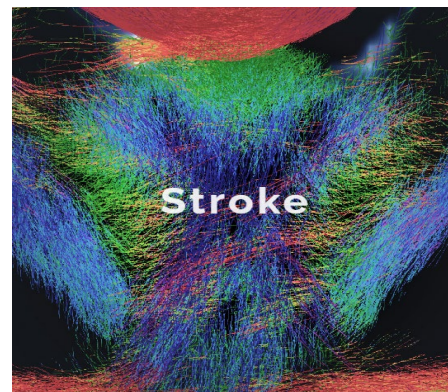
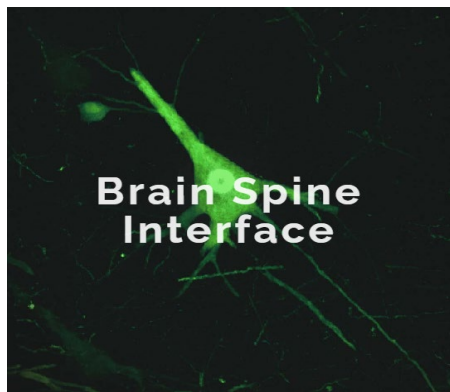
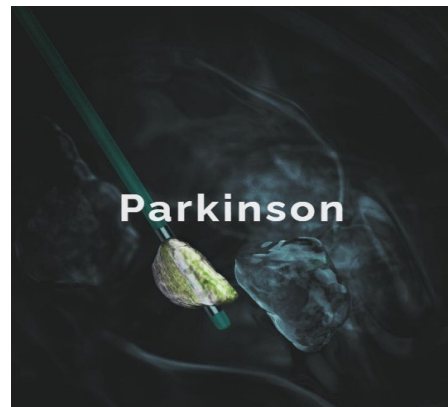


Classroom orchestration



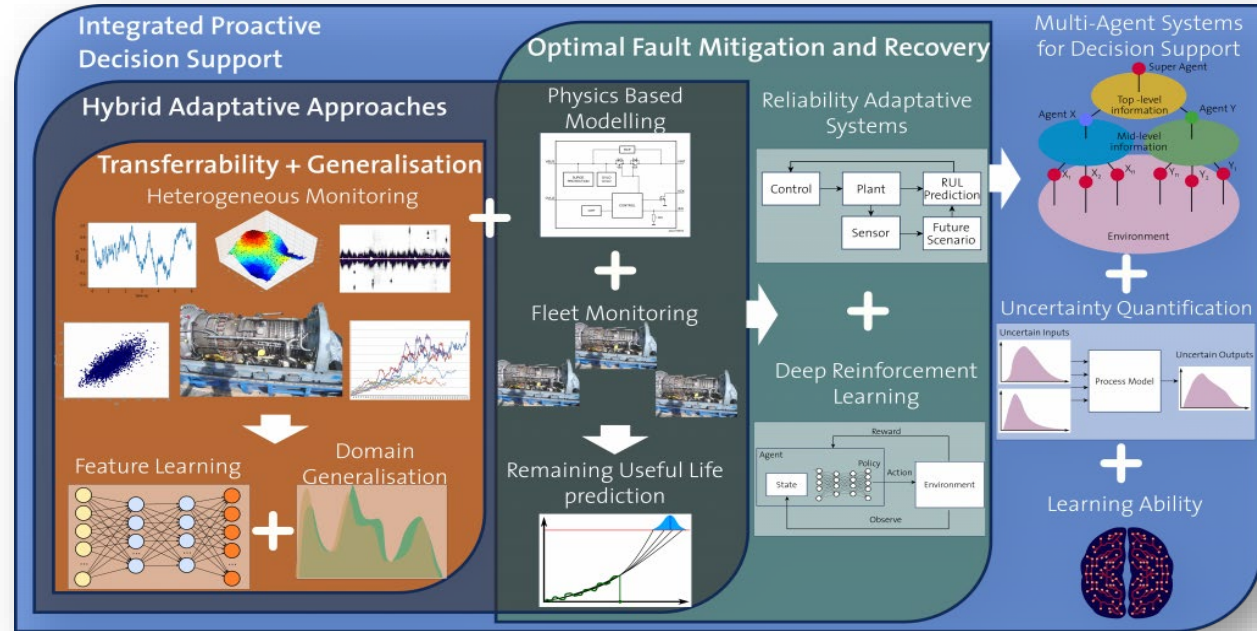
Signal level computing



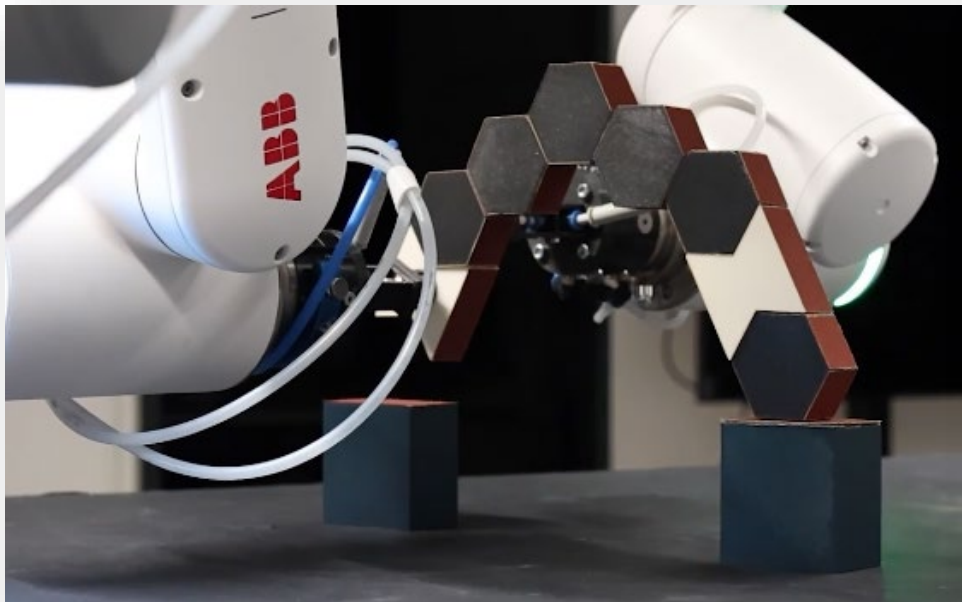


Current lab research:

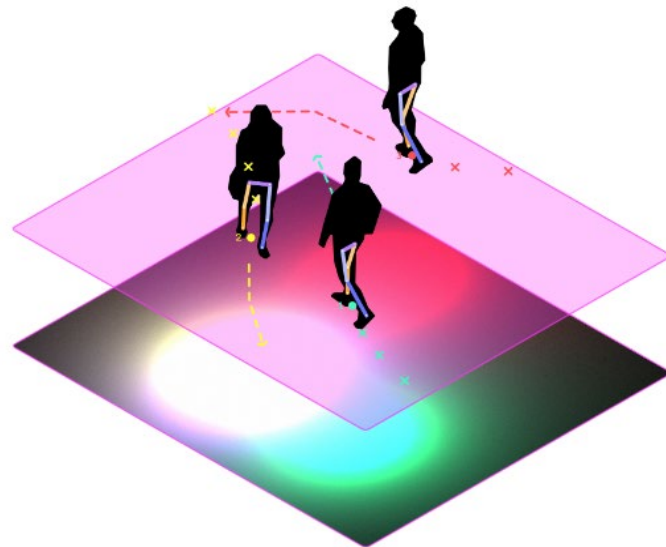
- Physics-informed Graph Neural Networks
- Intelligent Thermal Energy Networks
- Swiss railway traction grid state estimation and forecasting
- Intelligent maintenance of gas circuit breakers
- Framework for enabling re-use of steel structures



Construction modes that combine robotics with human interventions and digital media



Research installation that helps to understand and mediate shared spaces



Electronic skin



Soft neural electrodes



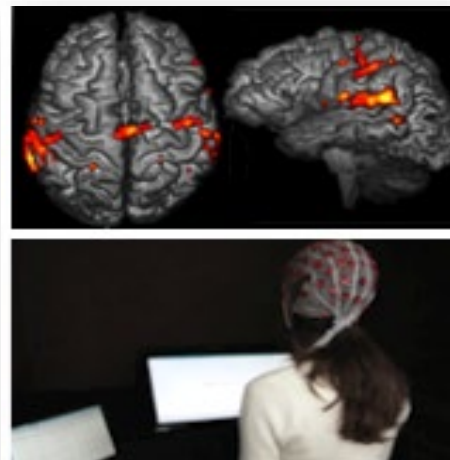
The neuroscientific study of
consciousness



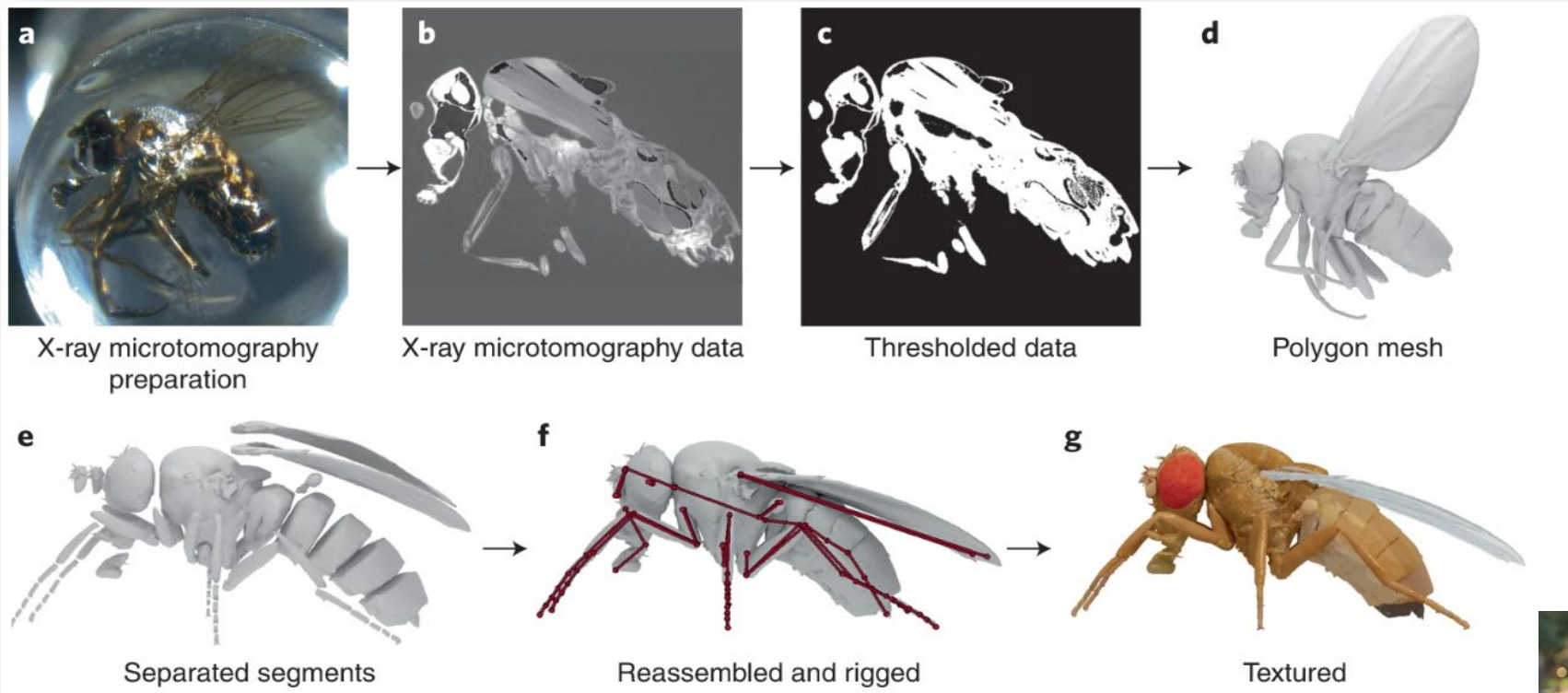
The adaptation and development
of technologies for human
neuroscience



The development of cognitive
neuroprostheses in clinical research

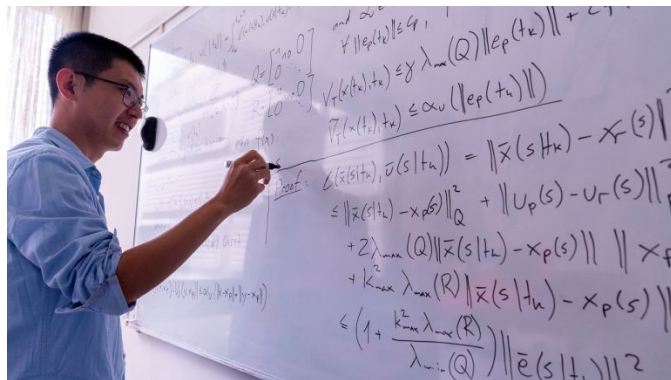


How animals leverage social information, learn about the world, and generate flexible motor behaviors?



Director: Pavan P. Ramdya

Optimization for Control



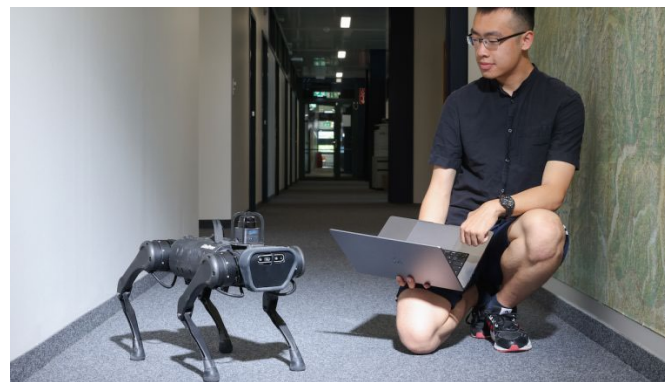
Data-Driven Control



Energy-Optimal Building Control



Predictive Control for Robotics



Director: Colin Jones

Exoskeletons



Rehabilitation



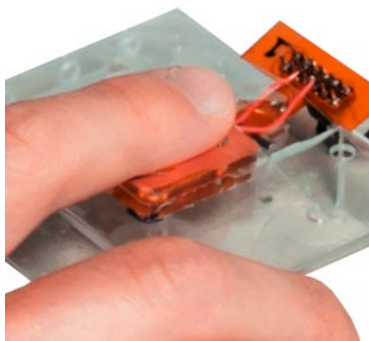
Industrial robotics



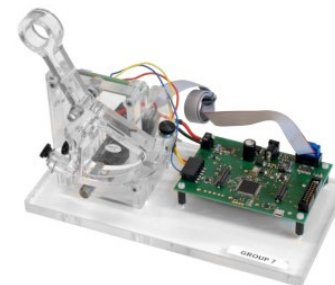
Surgical robotics



Haptics



Education



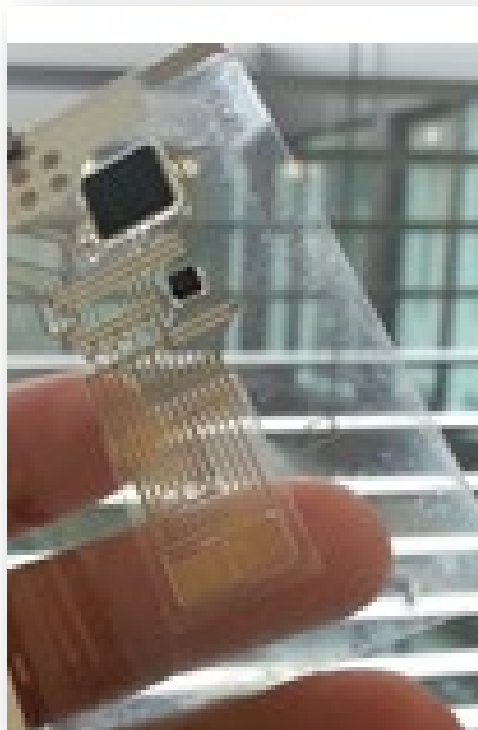
Group leader: Mohamed Bouri



Miniaturized polymer actuators and soft transducers



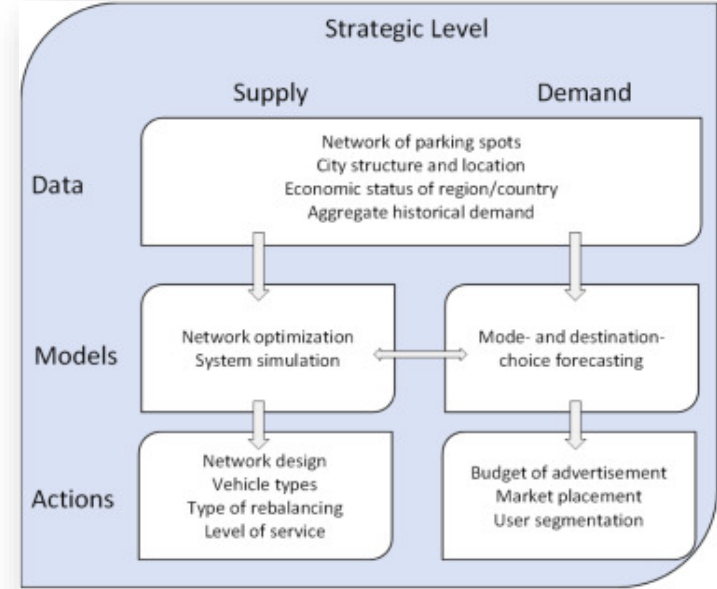
MEMS and Printed Microsystems



Wearable Haptic displays



Transportation and operations research based on discrete choice models

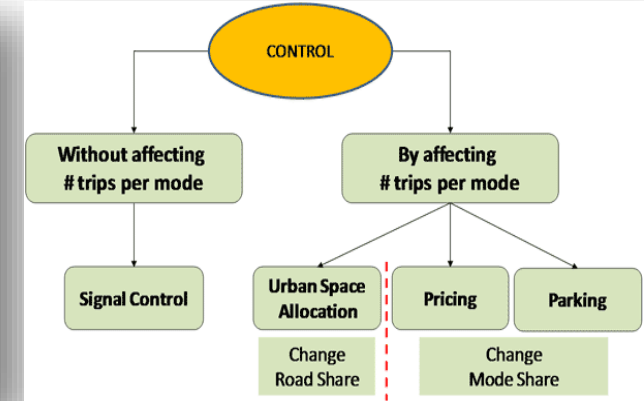
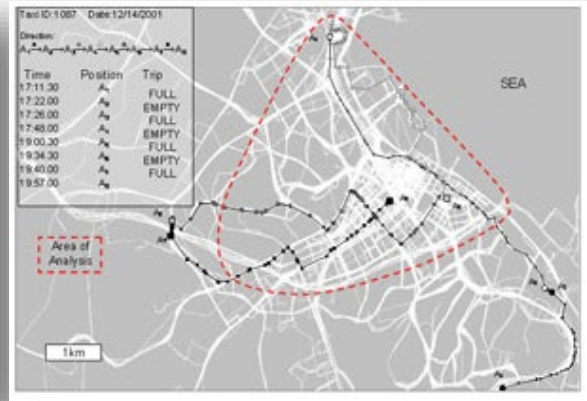
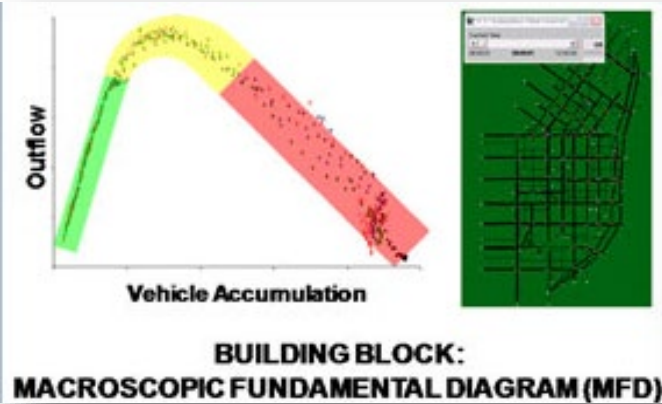


Director: Michel Bierlaire

Modeling

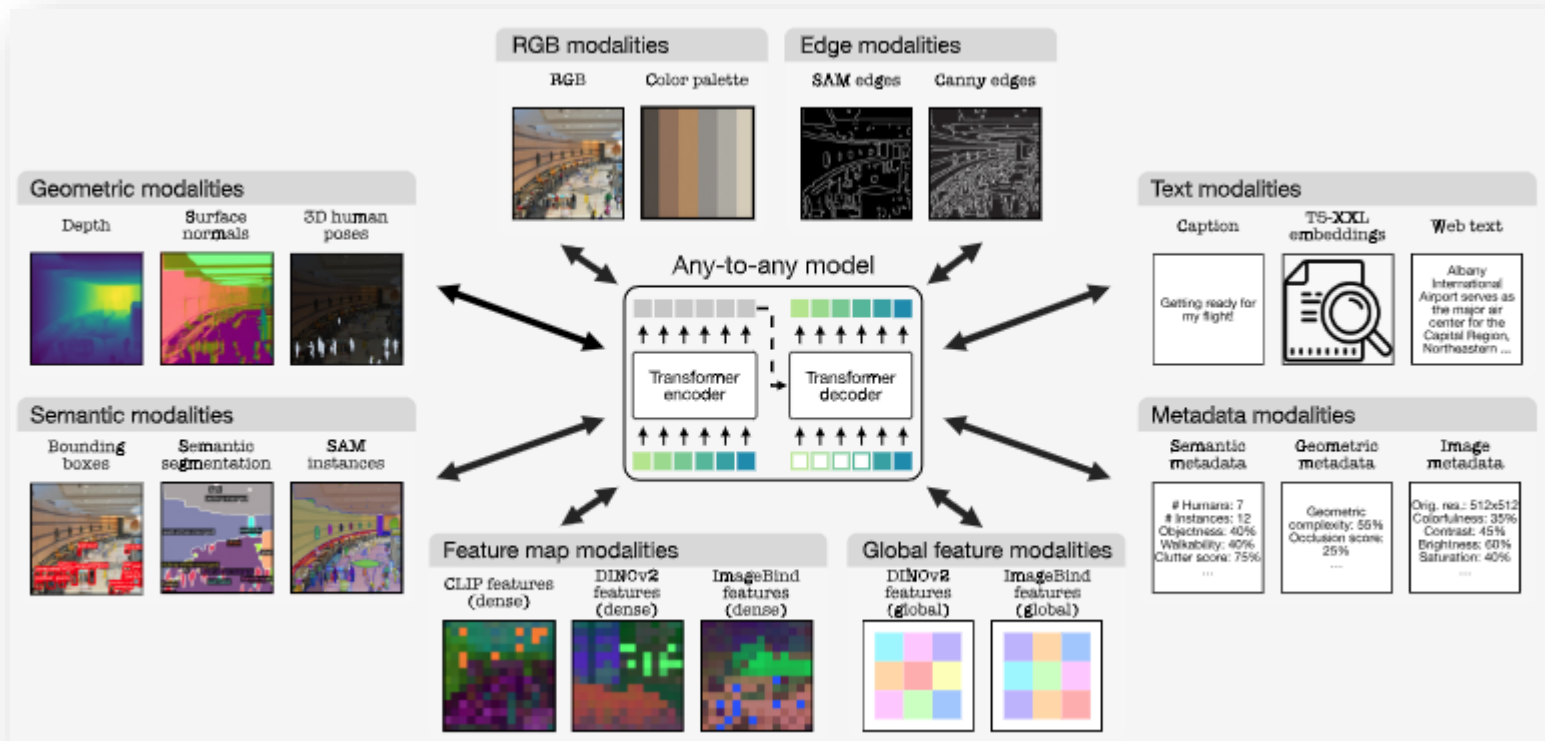
Monitoring

Control

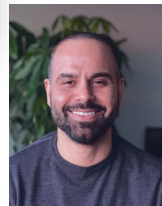


Visuals Intelligence and Learning Lab (VILAB)

Research focus is broadly on **Computer Vision, Machine Learning, and Perception-for-Robotics**



Research project example: The **4M multimodal training scheme** enables models to excel in diverse vision tasks, adapt effectively to new tasks or modalities, and unleash remarkable flexibility in multimodal editing, promising versatile and scalable foundation models for vision and beyond





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EPFL Robotics: An initiative that connects and promotes EPFL's advanced expertise in robotics and autonomous systems.

Link:
<https://video.epfl.ch/meo.com/935789575>

MAKE Projects: Fantastic team effort

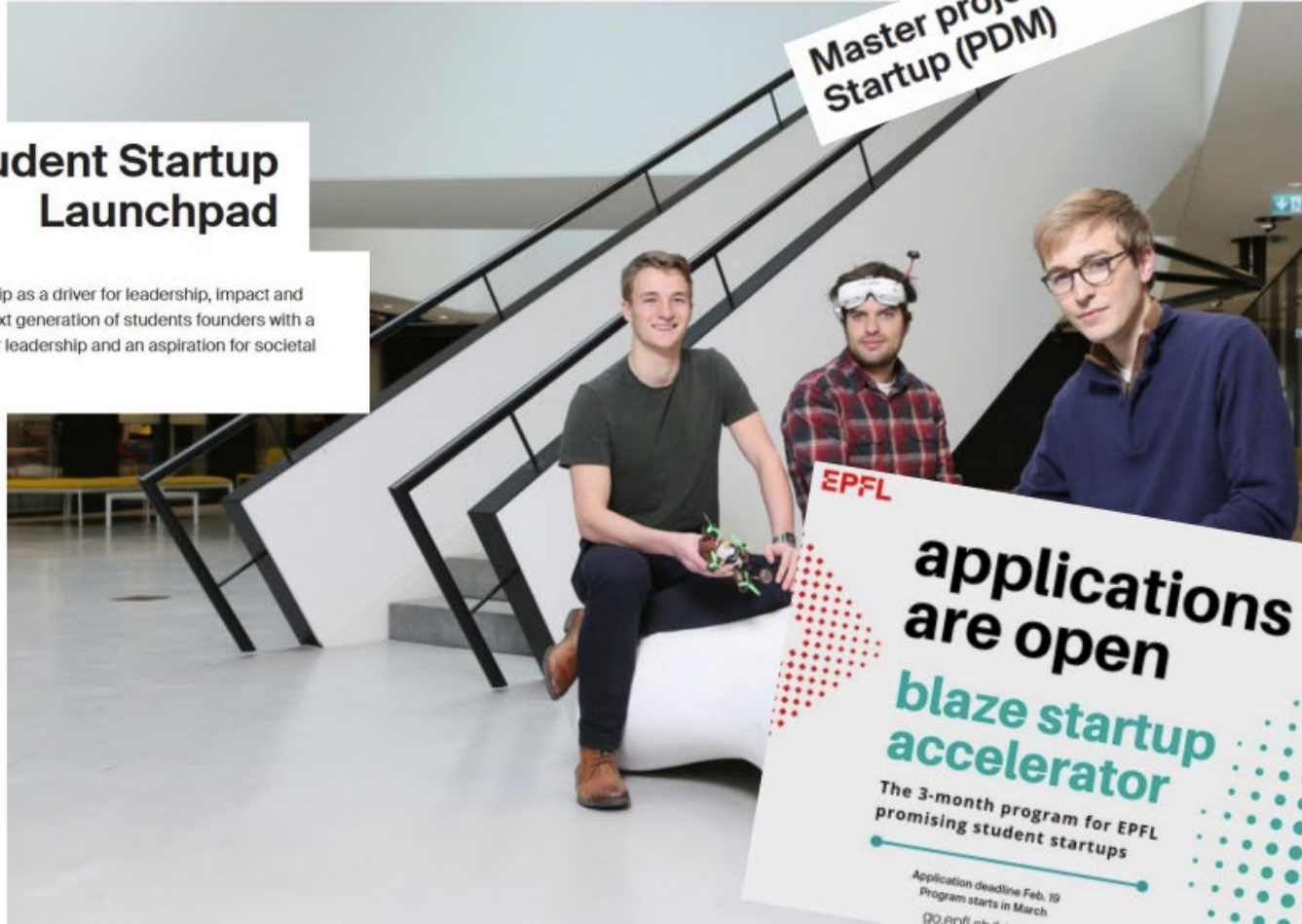


Entrepreneurship !

Student Startup Launchpad

We foster student entrepreneurship as a driver for leadership, impact and innovation. We are building the next generation of students founders with a drive for excellence, an instinct for leadership and an aspiration for societal impact.

Master project in your
Startup (PDM)



Example of collaborative projects with industry

Vision-based control of drones



Robotic automation of Food Science



Self sensing gripper




Startups in 2024

Implemented

 Aerospec

AIRCURVE MEDICAL

 Kinematik AI

HELIX ROBOTICS

In creation

Conspicuity Robotics

AutoMate

Robotics Startups



robotics

Innovation Booster



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Innovation Booster Robotics

The Innovation Booster Robotics, powered by Innosuisse, is proudly hosted at EPFL. The purpose of the Booster is to connect and strengthen the Swiss Robotics Ecosystem.

To learn more about the Booster's activities: ntnrobotics.ch



The team

- 3 structures:
 - Management committee (three people)
 - Steering committee (nine people)
 - Innovation Management Committee (nine people)

IBR team

Management

- Lead: Prof. Aude **Billard**, Head of LASA laboratory, Associated Dean for Education, President - IEEE Robotics and Automation Society
- Coordination: Dr. Anca **Rusu**
- Project Manger: **Maria Alejandra Jaimes**

Steering Committee

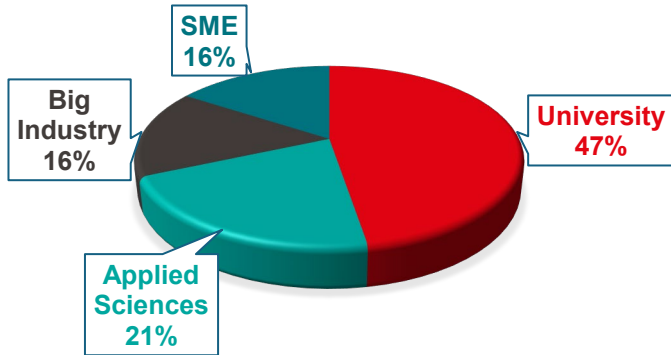
- Prof. Dr. Roland **Siegwart**, Professor of Autonomous Systems at ETH Zürich
- Prof. Dr. Georg **Rauter**, Head of Bio-Inspired Robots for MEDicine-Lab (BIROMED-Lab) at University of Basel
- Prof. Dr. Luca **Gambardella**, Professor at the Faculty of Informatics at Università della Svizzera italiana
- Prof. Dr. Christian **Bermes**, Head of Mobile Robotics at Fachhochschule Graubünden
- Prof. Dr. Jamie **Paik**, Associate Professor, Director of Reconfigurable Robotics Laboratory, EPFL
- Dr. Andreas **Bong**, Head Corporate Research & Technology, Hilti
- Dr. Hans-Peter **Fässler**, Chairman & Co-Founder, ANYbotics
- Dr. Nicola **Tomatis**, CEO at BlueBotics
- Kevin **Sartori**, Co-founder at Auterion

Innovation Management Committee

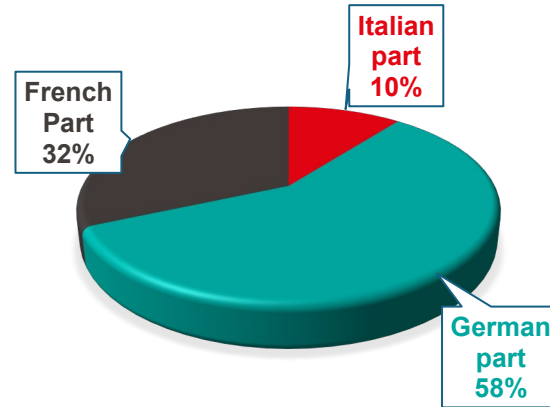
- Prof. Dr. Michel **Lauria**, Prof. at Hepia, Geneve School of Landscape, Engineering and Architecture
- Prof. Dr. Josie **Hughes**, Tenure Track Assistant Professor, Computational Robot Design & Fabrication Lab, EPFL
- Prof. Dr. Alessandro **Giusti**, Professor of AI for Autonomous Robotics at the Dalle Molle Institute for Artificial Intelligence, USI-SUPSI, Lugano, Switzerland
- Prof. Dr. Marco **Hutter**, Professor at Institute of Robotics and Intelligent Systems, ETH Zürich
- Prof. Dr. Agathe **Koller**, Head of Institute, ILT, Ostschweizer- fachhochschule
- Prof. Dr. Stefan **Weber**, Chief Executive Officer at CAScination AG Professor Chair of Image Guide Therapies, University of Bern
- Prof. Dr. Sarah Dégalier **Rochat**, Professor Dr. at Bernerfachhoschule
- Jean-Marc **Collet**, Managing Director, Switzerland – Staubli
- Ariane **Nasrin**, Head of Competence Center for Robotics, SBB

A team characterized by diversity among the three constituent structures

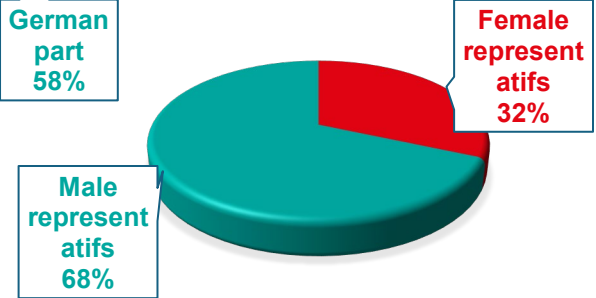
STAKEHOLDER TYPE



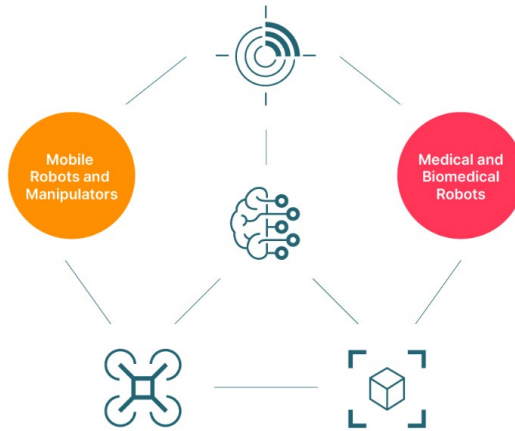
REGION



GENDER



What?



Feasibility studies and proof of concept.

Teams

Minimum two partners from two different entities in Switzerland (one partner may come from abroad)

(min. one non-commercial **research partner** and one **implementation partner**)

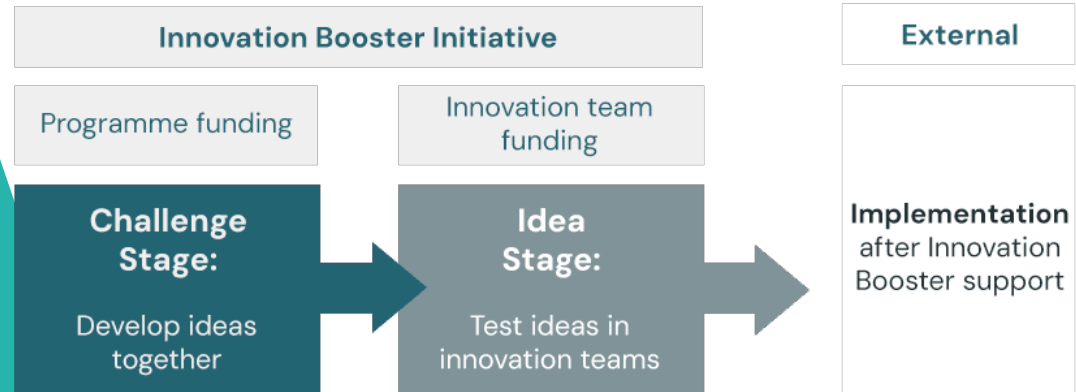
Examples

- Academia + Industry
- Academia + Start-up+ Industry
- Academia + Gov/Non-profit org.

Criteria

- Innovative aspects of the technology (radical innovation)
- Relevance and novelty of team
- Project's feasibility
- Economic impact on the Swiss economy
- Next steps

Activities of the Booster



IBR workshops in 2024

Basel– November 1st

SWISS ROBOTICS DAY

Swiss Robotics Flagship Event



University
of Basel

Department of
Biomedical Engineering



In discussion:
Bern/Zurich?: Agriculture
and robotics

Bienne - 27 June 2024

Data management challenges in robotics

d+i

data innovation alliance



SWISS
ROBOTICS
COMPETENCE
CENTER

Lausanne – 18 June 2024

Integrating Ergonomics and Control
Systems in Exoskeleton Design

EPFL

Calls for proposals

robotics
Innovation Booster



Our Funding
Process

Link:

https://www.youtube.com/watch?v=oPk_YNKIOdQ&t=7s

Collaborative projects

Sept call 2023



idiap NVISO
RESEARCH INSTITUTE
ADVANCING HUMAN POTENTIAL

AI-powered
dentist chair

Robot-
assisted
shopping cart

9 funded
projects in
2023

Sensorimotor
therapy

Protective
shell for
inspection
drone

Assessig
product
texture



OST
Ostschweizer
Fachhochschule

Dividat.



EPFL



Nestlé

ILT Institute for Lab Automation
and Mechatronics

SNABLIND

Swiss National Association
of and for the Blind

Schweizerischer Blindenbund
Beziehliche blinder und sehbehinderter Menschen



- AI Stereo Camera**
- Product Identification
 - Hand Tracking
 - 3D-Mapping

Headset

- Speech-to-Text: Shopping List
- Text-to-Speech: Product Location on Shelf, Product Name, Price, etc.

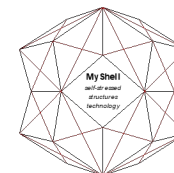
Autonomous Shopping Cart

- Intelligent, motorized Chassis
- Navigation to Product/Checkout
- Avoiding Obstacles/People



hep i a
Haute école du paysage, d'ingénierie
et d'architecture de Genève

FLYBOTIX
professional inspection drones



AISO™ drone by Flybotix

Collaborative projects

April call 2023



UAV for
water
sampling

9 funded
projects in
2023

Robot for
surface
finishing

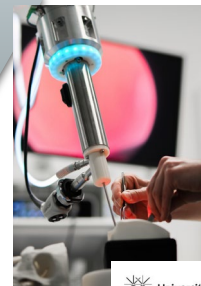


GRAMAZIO
KOHLER
RESEARCH
E EA

zhaw
School of
Engineering
IMS Institute of
Mechatronic Systems

Ruso
Teg
AG

Robotic
surgery
assistant



University
of Basel
Department of
Biomedical Engineering

BIROMED-Lab
Medical Robotics and Mechatronics

STÄUBLI

RoboBrush

urech
DER BODENDESIGNER
SEIT 1959

csem

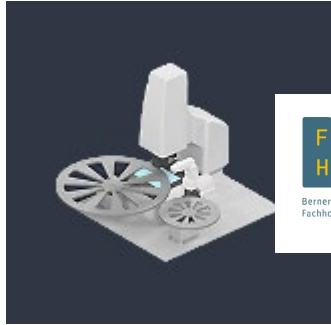
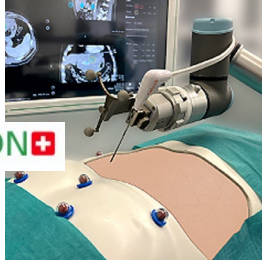


Collaborative projects

Sept call 2022

u^b
UNIVERSITÄT
BREMEN

CASCINATION 



BFH
Berner
Fachhochschule



ETH zürich

ASC-NTO

Robot-assisted thermal ablation

10 funded projects in 2022

Pick and Place for Transparent Micro-devices

Automated Security Patrolling

FireDrone

EMG-controlled hand exoskeleton

 Empa

 VWF ENGINEERING

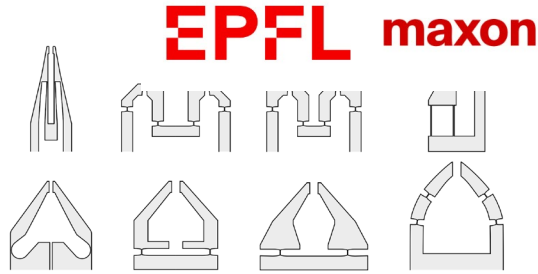


EPFL emovo



Collaborative projects

April call 2022



Self sensing gripper

Seeze, the eye in hand

10 funded projects in 2022

Wind Turbine LPS Measurement

Parcel logistics

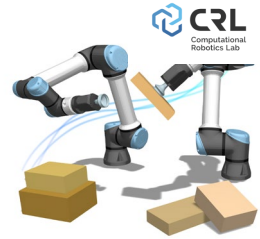
Hybrid walking-rolling wheel



Walk'n'Roll
Hybrid wheel for mobile robots



hepia
Haute école du paysage, d'ingénierie et d'architecture de Genève



Robin

Next Calls

Next calls:

- September 13th, 2024
- [January 31st, 2025 – special Swiss Robotics Day call](#)
- April 28th, 2025



SWISS ROBOTICS DAY

OUTLINE

EPFL at glance

Robotics Education

Robotics Research

EPFL Robotics Initiative

Innovation Booster Robotics

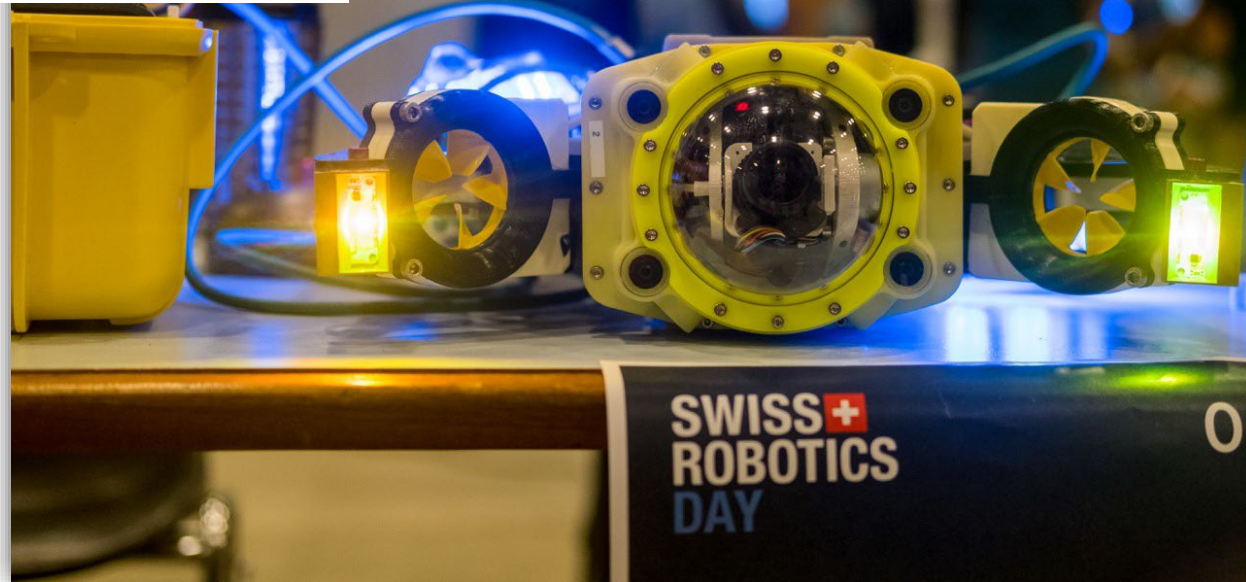
Swiss Robotics Day

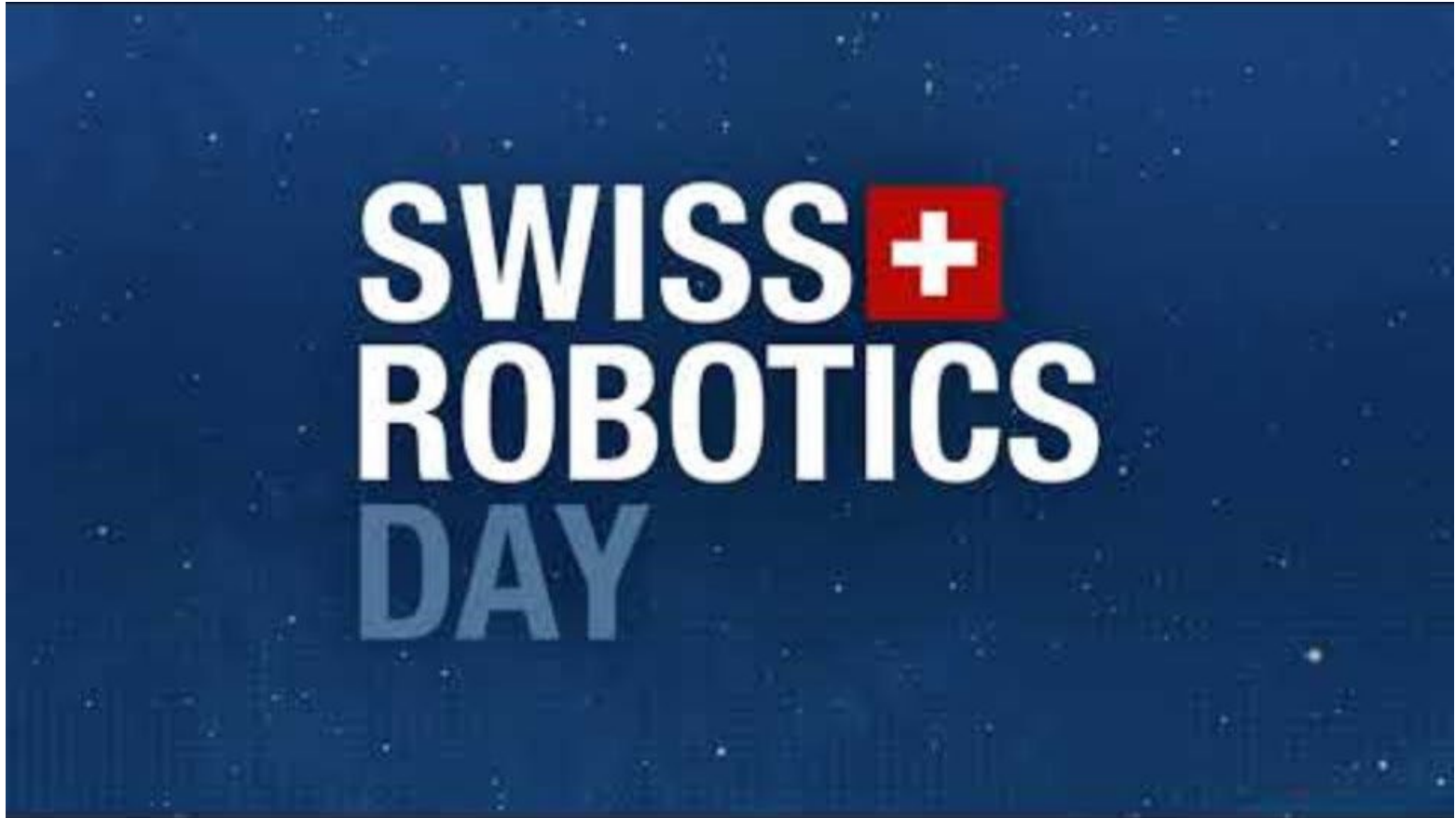
Swiss Robotics Association

Q&A

Swiss Robotics Day

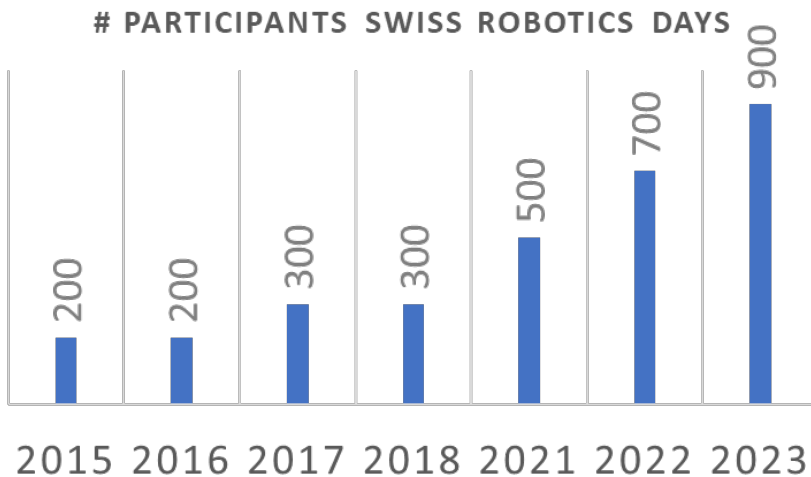
EPFL is proud to co-organize this high-profile annual robotics symposium. Swiss Robotics Day aims to promote & strengthen the Swiss Robotics Ecosystem. Swiss Robotics Day has been held annually since 2015.



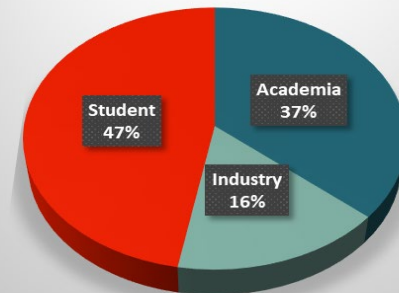


Link: <https://vimeo.com/940352494>

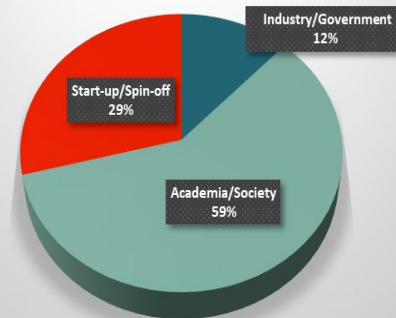
Participants



SRD 2023 Participants



SRD 2023 Booths

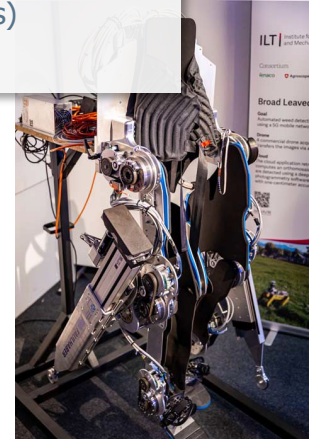


What's expected in 2024

*Building on the same
successful format from the
past, based on feedback from
past attendees, now with an
expanded reach and exciting
solid components.*

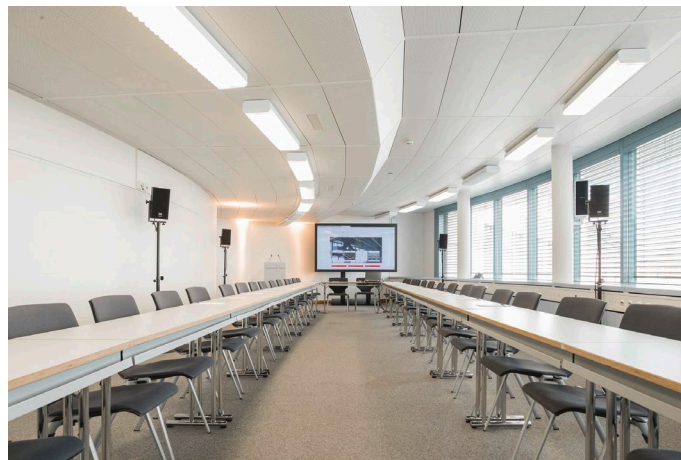
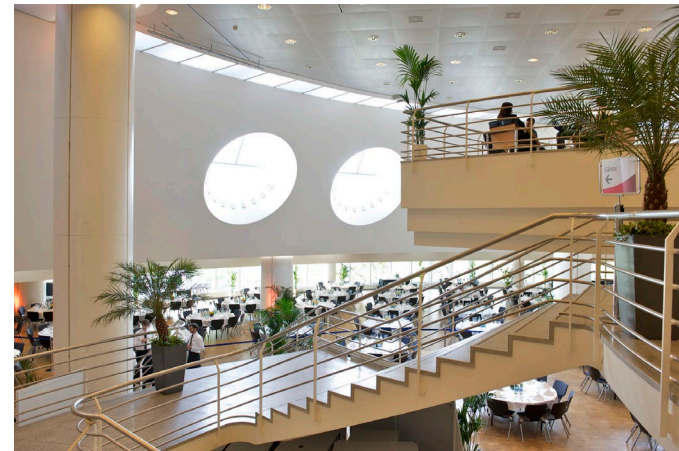


- Conference format, trade fair feel
- Open to a broader audience that represents stakeholders from industry, research and society → increased visibility with more visitors
- Matchmaking opportunities
- Pitches from robotics startups and companies to present ideas in an open stage forum
- Opportunity to meet and recruit new talent → Job Advertising (as part of the sponsor booths)



Messe Congress Center

Basel



Draft agenda for 2024

Time	Session
9:15 – 9:30	Welcome and Introduction
9:30 – 10:15	3* KEYNOTES: Focus on useful for humans: medical, education, assistance
10:15 – 10:45	Panel on future directions on medical robotics
	Break
11:15 - 12:00	3* KEYNOTES: Trends in robotics
12:00 . 12:30	Panel on innovation trends
12:30 – 13:00	IBR and Association
13:00 – 14:00	Lunch and opening of the exhibition
14:00 17:00	Exhibition job fair, matchmaking, industry roundtable, mini drone competition, Sparksense workshop



Why attending

The top 3 highlights that participants rated as most attractive in 2023:

1. Exhibitions
2. Presentations
3. Collaborations

Engaging with the event:

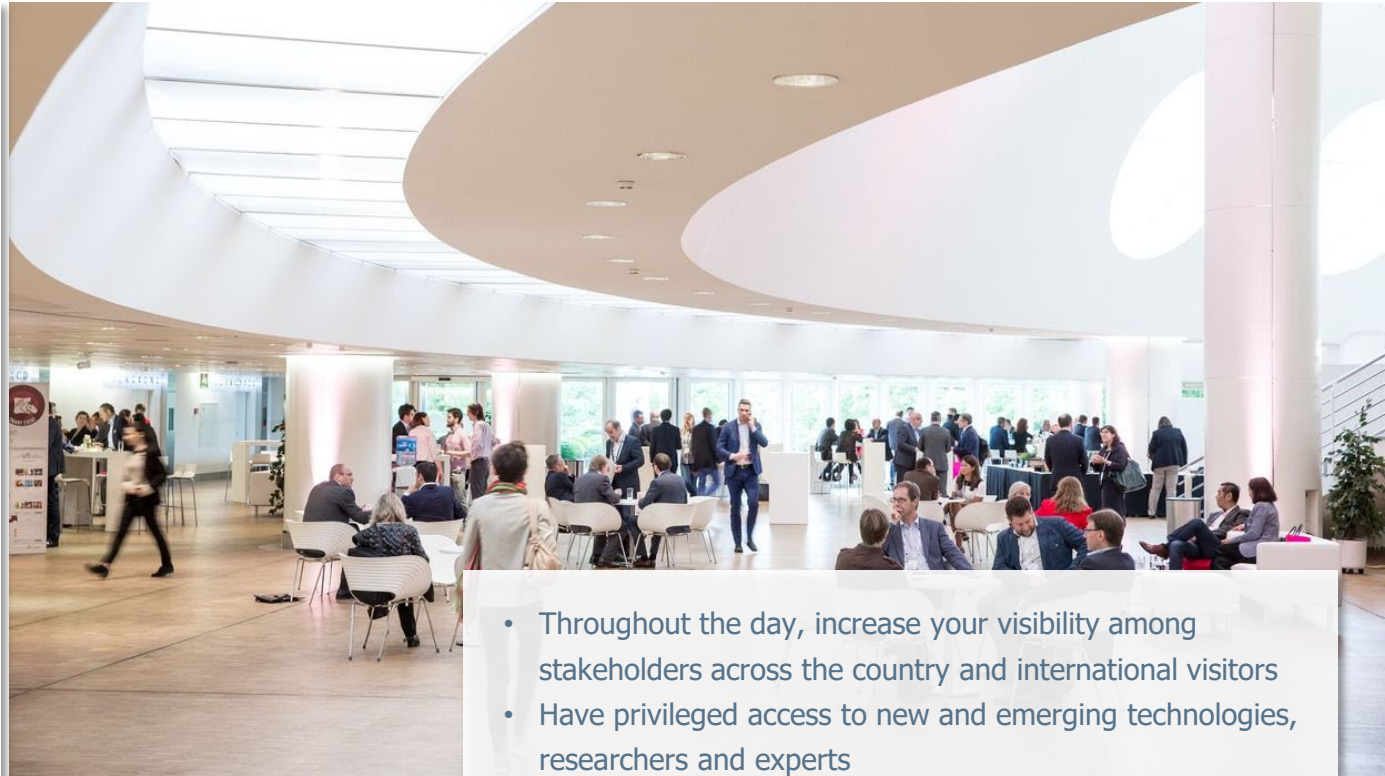
- Attend as a participant.
- Exhibit by securing a booth space.
- Sponsor the event.



- Access to new and emerging technologies
- Meet key players of the Swiss Robotics Ecosystem
- Exchange with experts in the field
- Visit startups and research and booths displaying their latest innovations
- Meet the best and brightest talent in the field

Why become a sponsor

The Swiss Robotics Day provides a unique opportunity for widespread visibility to the Robotics community across the country and to international visitors (international stakeholders for example such as Japanese delegation)



- Throughout the day, increase your visibility among stakeholders across the country and international visitors
- Have privileged access to new and emerging technologies, researchers and experts
- Snapshot of current trends that will help shape future innovation directions to remain relevant / competitive in an ever-evolving landscape
- Access to talent

Sponsors in 2023

SPONSORS

Platinum



Diamond

Boston Dynamics
AI INSTITUTE

Gold



Gold



Gold

maxon

Gold



Silver



Silver



Bronze



Bronze



Sponsor



Sponsor



SPONSORS



Confirmed
sponsors in 2024



A close-up photograph of a person's hands holding a white rectangular sign. The person is wearing a dark suit jacket, a white dress shirt, and a dark tie. The sign has the text "BECOME A SPONSOR" written on it. "BECOME A" is in black, uppercase, sans-serif font, and "SPONSOR" is in a larger, bold, red, uppercase, sans-serif font. The background is slightly blurred, focusing attention on the sign and the hands.

BECOME A
SPONSOR

Write an email to contact@ntnrobotics.ch for details



OUTLINE

EPFL at glance

Robotics Education

Robotics Research

EPFL Robotics Initiative

Innovation Booster Robotics

Swiss Robotics Day

Swiss Robotics Association

Q&A

Transferred legacy

robotics+
Innovation Booster



NCCR Robotics Research Education Tech Transfer Equal Opp



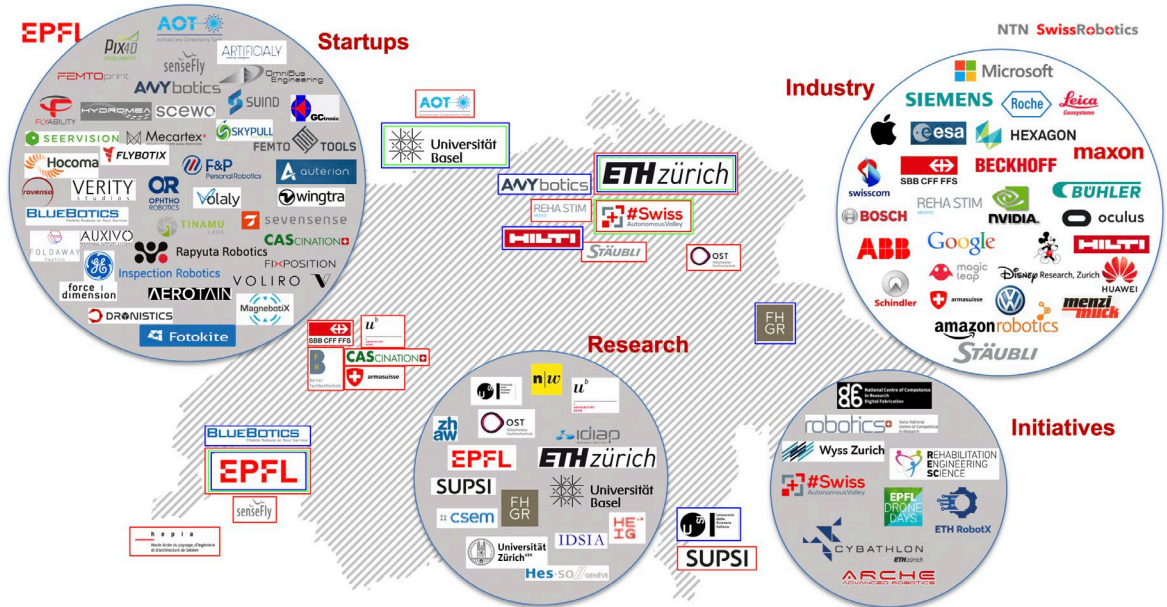
robotics+
Innovation Booster



SWISS ROBOTICS DAY 

**Swiss
Robotics
Association**

SWISS ROBOTICS ASSOCIATION




Goals of the entity

The purpose of the Association is to serve as a networking hub for all robotics stakeholders across Switzerland and foster collaboration among interested parties in the country, including support for education and students.

- It aims to promote collaboration.
- It facilitates collaboration across Swiss universities and local industry
- It engages in constructive dialog.
- It promotes public access to and adoption of robots.

Collaborations Inside and Outside EPFL:

- We are in contact and collaborating with numerous associations and organizations, 1500 contacts.
- Other associations:
- Other Innosuisse Boosters: 



Why joining?

Strengths:

- Strong Collaborative Network
- Leading Research
- Diverse Network
- Strategic Partnerships-
- Strategic Goals Alignment
- Industry and Research Support
- Public Engagement

EPFL



Contact:
robotics@epfl.ch
Anca.rusu@epfl.ch

EPFL
Robotics