EDIC: PhD Program @ IC

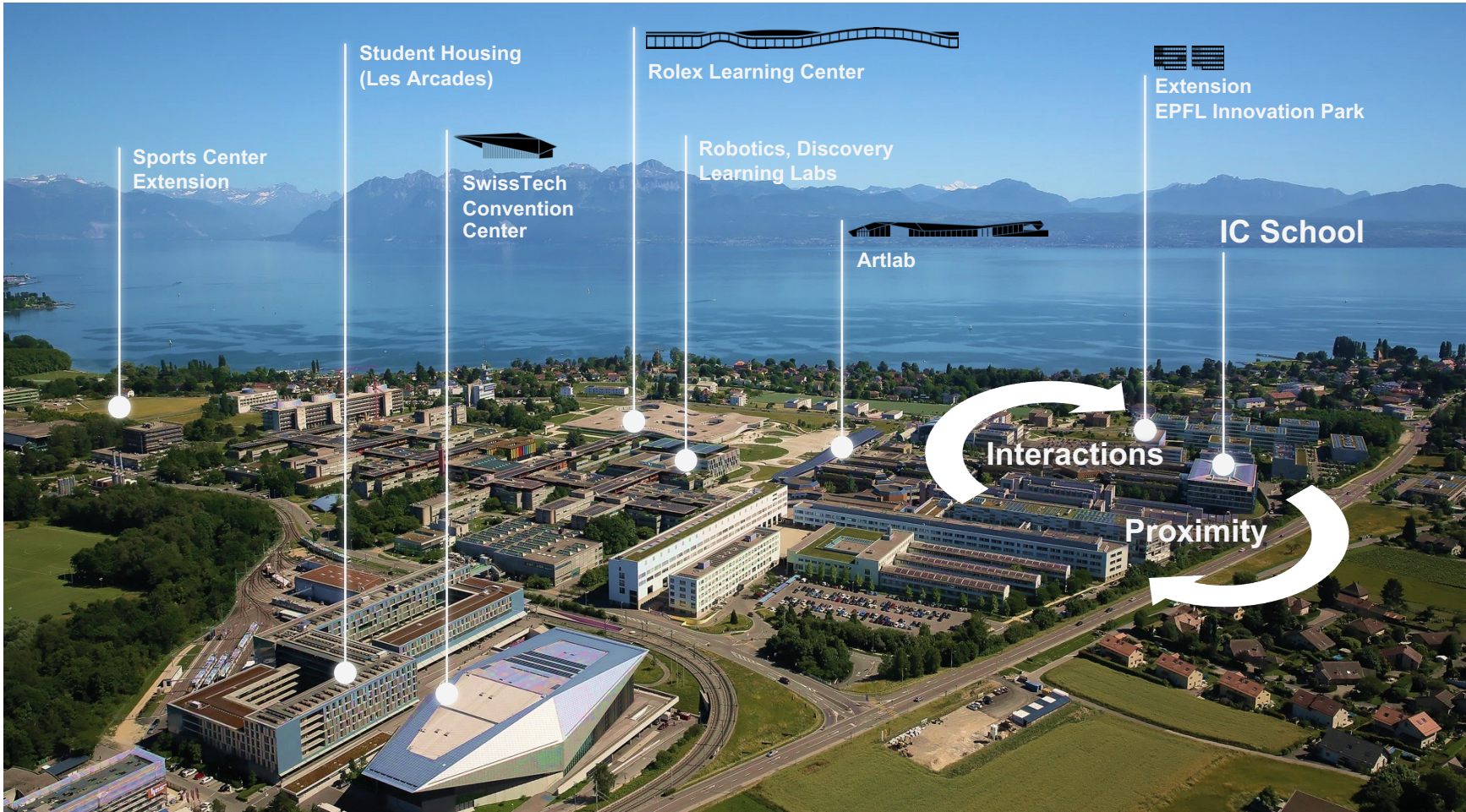
Prof. Michael Kapralov

EDIC Admission Chair

October 28, 2025

School of Information & Communication Sciences

EPFL Campus


Sports Center Extension
Student Housing (Les Arcades)
SwissTech Convention Center
Rolex Learning Center
Robotics, Discovery Learning Labs
Artlab
Extension EPFL Innovation Park
IC School
Interactions
Proximity

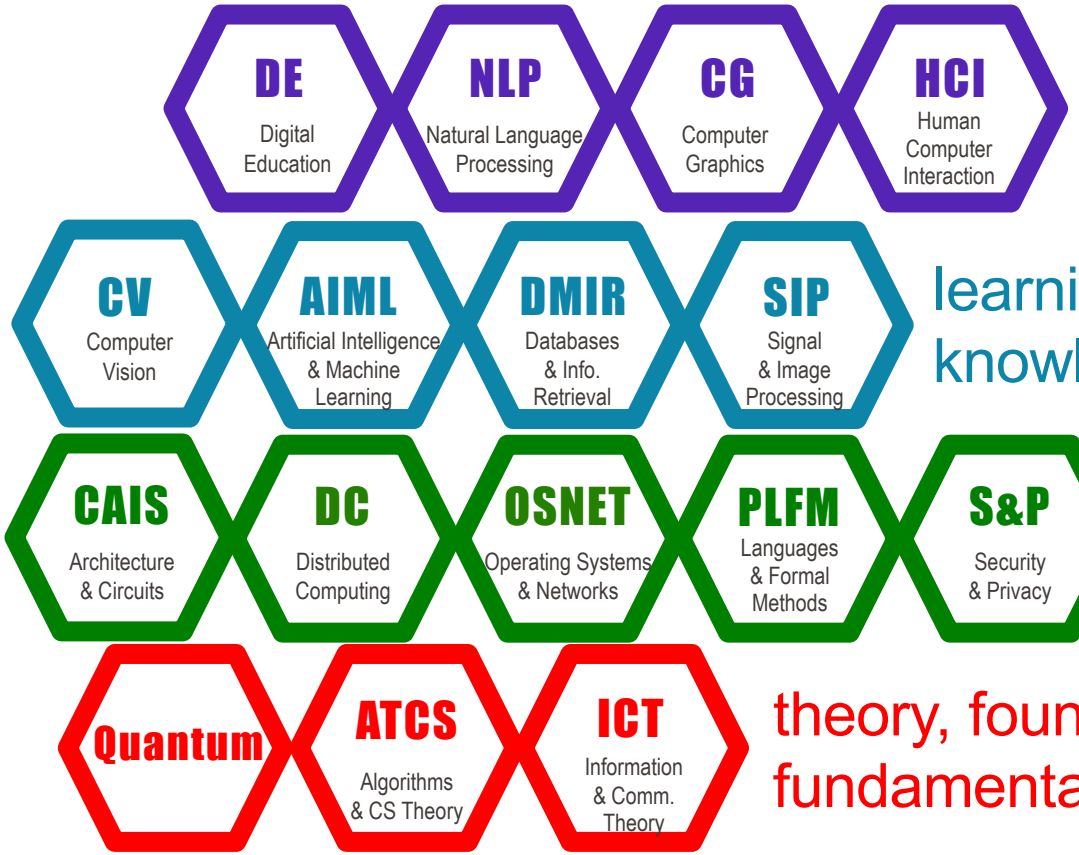
EPFL

A vibrant campus

School of Computer and Communication Sciences - IC

- Internationally highly ranked
- 57 Professors + 2 new hires: S&P and OSNET
- From peer schools (e.g., Berkeley, CMU, Cornell, MIT, Stanford, …)
- Internationally recognized (e.g. US Academies, top ACM Fellows in Europe/UK)
- Strong industrial liaison
- Theoretical approaches to interdisciplinary applications of AI, data science, computer systems, cybersecurity & visual computing

IC at a glance



interfacing with humans …

learning from data, extracting knowledge, transforming data …

building real systems, all layers…

theory, foundations, fundamental limits…

theory, foundations, fundamental limits...

Computation Security
https://compsec.epfl.ch/

Theoretical Computer Science
https://theory.epfl.ch/osven/

theory, foundations, fundamental limits...

EPFL

Lenka Zdeborova

Taming deep learning using physics.

We deploy advanced tools of theoretical physics to study high-dimensional computation problems appearing in statistical inference, learning with deep neural networks or combinatorial optimization.

Learn more on *go.epfl.ch/phd-edic*

Statistical Physics of Computation
https://www.epfl.ch/labs/spoc/

EPFL

Patrick Thiran

Curious, perfectionist, thoughtful.

My interests are in probabilistic and data-driven models of networks and dynamic processes taking place on networks (including learning, inference and optimization).

Learn more on *go.epfl.ch/phd-edic*

Information and Network Dynamics
https://indy.epfl.ch/

EPFL

Mika Göös

Curious, passionate, stubborn.

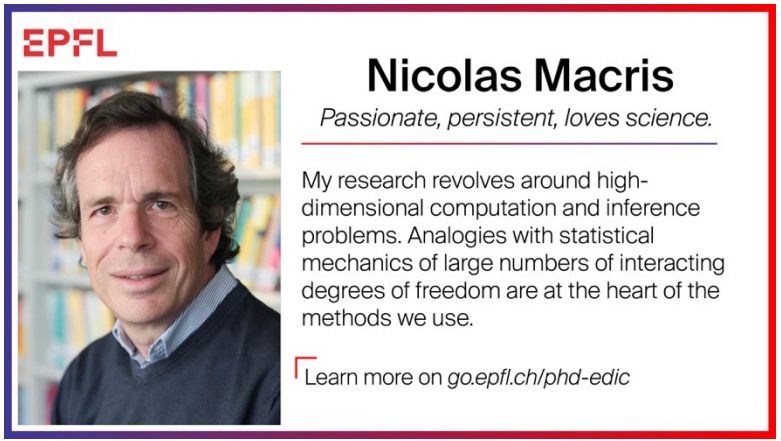
I'm obsessed with proving impossibility results in theoretical computer science. Can we show a given computational problem simply admits no efficient algorithm?

Learn more on *go.epfl.ch/phd-edic*

Theoretical Computer Science
https://theory.epfl.ch/mika/

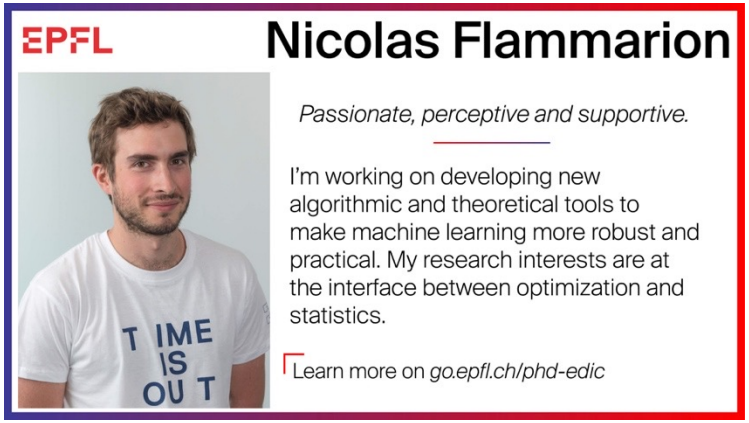
theory, foundations, fundamental limits...

Distributed Computing
https://dcl.epfl.ch/

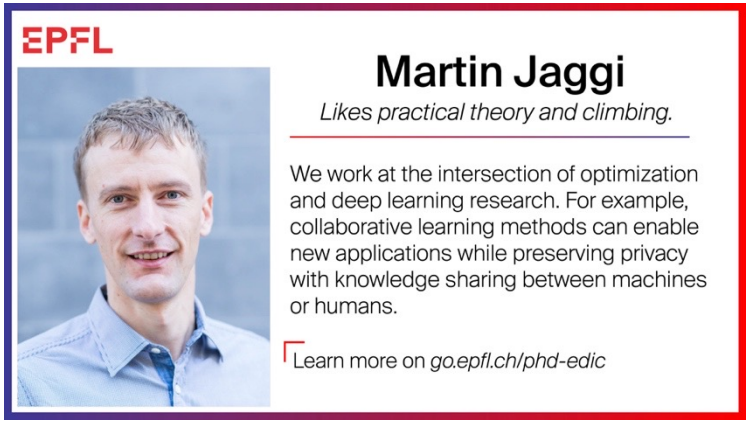


Statistical Mechanics of Inference in Large Systems
https://www.epfl.ch/schools/ic/ipg/

learning from data, extracting knowledge, transforming data ...



Theory of Machine Learning
https://tml.epfl.ch/



Machine Learning and Optimization
https://mlo.epfl.ch/

learning from data, extracting knowledge, transforming

EPFL

Sabine Süsstrunk

Curiosity, challenge, aesthetics.

Our research interests are in computational photography and computer vision. Aiming to improve everyone's photographic experience, we develop models, algorithms, and systems that help to understand, process, and measure images.

Learn more on *go.epfl.ch/phd-edic*

Image and Visual Representation
https://ivrl.epfl.ch/

EPFL

Amir Zamir

Anti low-hanging fruit, perfectionist.

Our research is on computer vision, machine learning, and perception-for-robotics. Every day, we ask the questions: how do we enable machines to see the world, understand it, and act in it intelligently, robustly and safely?

Learn more on *go.epfl.ch/phd-edic*

Visual Intelligence and Learning
https://vilab.epfl.ch/

EPFL

Pascal Fua

Pilot, skier and sometime researcher.

Computer Vision fascinates me because trying to emulate the human ability to see is tantamount to trying to emulate the human mind. We are not there by any stretch of the imagination.

Learn more on *go.epfl.ch/phd-edic*

Computer Vision
https://cvlab.epfl.ch/

Building systems, all layers ...

Sensing and Networking Systems
https://sens.epfl.ch/

HexHive
https://hexhive.epfl.ch/

Building systems, all layers ...

EPFL

Anastasia Ailamaki

Impact-driven with a positive attitude.

We design real-time intelligent systems for data-intensive applications. Our systems learn and adapt to changing workload requirements, while using heterogeneous compute and memory devices.

Learn more on *go.epfl.ch/phd-edic*

Data-Intensive Applications and Systems
https://dias.epfl.ch/

EPFL

Edouard Bugnion

Impact-oriented, Swiss, multi-tasker.

Interested in operating systems, data center infrastructure (systems and networking), and a bit of computer architecture. I am specifically researching how to make cloud computing more efficient and trustworthy.

Learn more on *go.epfl.ch/phd-edic*

Data Center Systems
https://dcsl.epfl.ch/

EPFL

Paolo Ienne

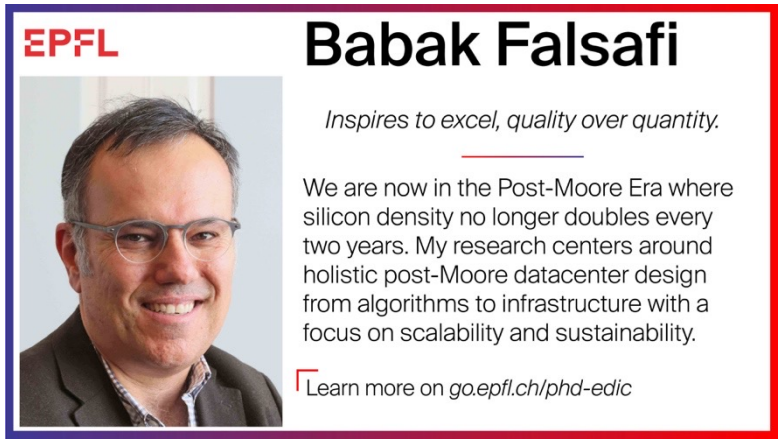
Passionate about digital hardware and design automation.

Excellent performance in computing systems is the result of a judicious blend of computer architecture, compiler technology, and hardware implementation. I love to play across their boundaries to uncover synergies and explore disruptive ideas.

Learn more on *go.epfl.ch/phd-edic*

Processor Architecture
https://lap.epfl.ch/

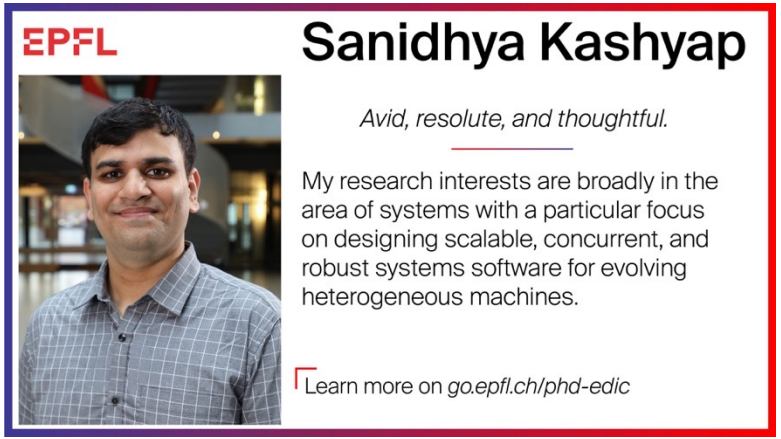
Building real systems, all layers ...



Parallel Systems Architecture
https://parsa.epfl.ch/
https://people.epfl.ch/mirjana.stojilovic

Building real systems, all layers ...

Scalable Computing Systems
https://www.epfl.ch/labs/sacs/



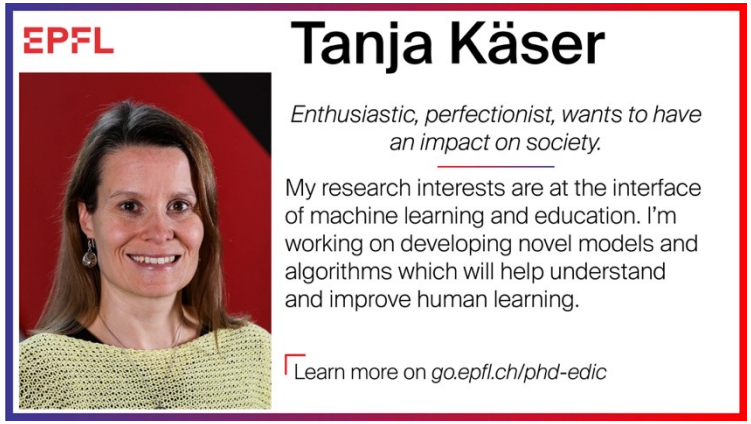
Robust Scalable Systems Software
https://rs3lab.github.io/

Interfacing with humans ...

Realistic Graphics
http://rgl.epfl.ch/

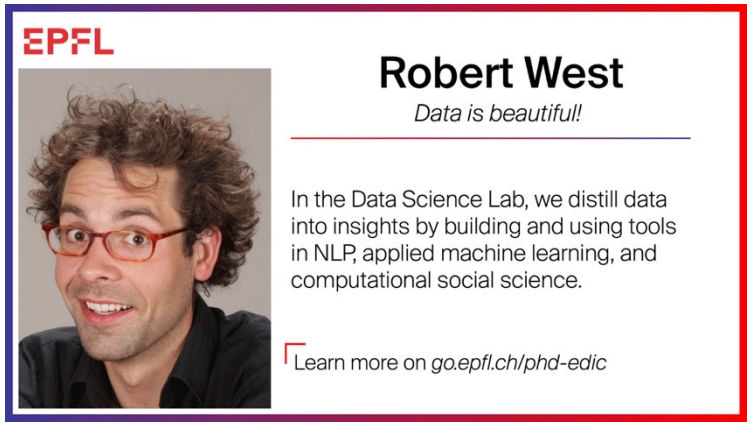
Geometric Computing
https://gcm.epfl.ch/

Interfacing with humans ...



Machine Learning for Education
https://ml4ed.epfl.ch/

Natural Language Processing
https://nlp.epfl.ch/



Data Science
https://dlab.epfl.ch/

IC research centers

EPFL AI Center

For Fundamental Studies
BERNOULLI CENTER

Center for Digital Trust

scalacenter
For open source. For education.

EcoCloud

SDSC

Q-S-E

EPFL AI Center

Center for Digital Trust

Scala Center

EcoCloud

Swiss Data Science Center

Center for Quantum Science and Engineering

Why do a PhD?

- PhD is about where the CS revolution is going, and how you can be at the center of it all
- You should consider a PhD if you want
  - Be an academic
  - Take leadership positions in industry R&D
  - Preparation for a startup

Who should do a PhD?

- Fascinated by CS and have an aptitude for science and engineering
- Passionate about understanding how and why things work, the underlying fundamentals
- Want the breadth and depth for a vision to have an impact and make a difference

Profile

- 4- or 5-year Bachelor or Master degree
- Rigorous background in computer science, communication systems, electrical engineering, mathematics, physics and/or related fields
- Highly motivated, exceptional students who are passionate about scientific research

EDIC doctoral program

go.epfl.ch/phd-edic

In a nutshell

- 4-6 years duration, in English
- Competitive salary (~CHF 55k/y)
- Award winning faculty and students
- Strong industrial liaison

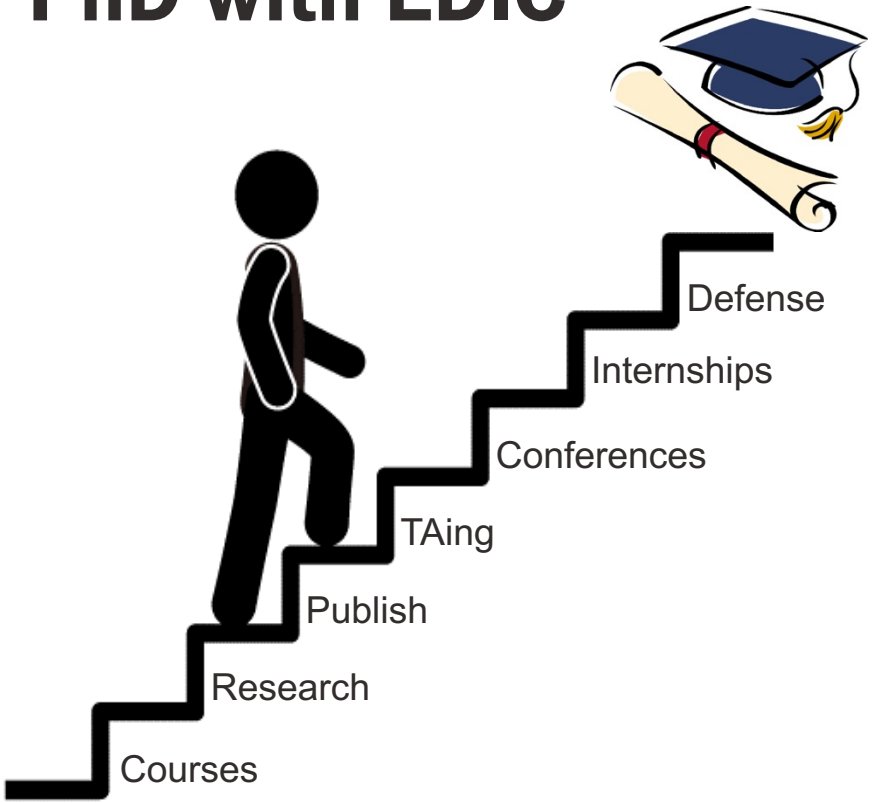
In numbers

- 310 PhDs, among campus largest
- >90% international students
- 55-65 join per year
- ~5 PhD students per faculty

EDIC doctoral program

- Similar to the US doctoral programs; doctoral students do not apply directly to a professor, but to a program.
- Admission is evaluated by a committee of professors from different areas of computer sciences with the goal of recruiting the best candidates.
- The top students selected by the committee receive an IC school fellowship that covers their first year.
- This system is particularly valuable if you are interested in multiple research areas and would like to experiment and gain further experience before committing to a concrete path.
- Multiple rotations are encouraged but not a firm requirement (in case you are only interested in a single lab).

Your path to a PhD with EDIC



During your PhD with EDIC

- **You have an advisor(s)**
  - With you until defense
  - Courses, research, career planning
  - Annual feedback (evaluations)
- **You have a mentor**
  - Program committee contact person + a “buddy” (senior PhD)
  - Faculty member beyond (from outside area)
  - Someone to talk to in general

Your first year with EDIC ...

PhD Orientation (1 week)	
September	Administrative tasks
	Research seminars
	Social events
	Matching process *
Early-September	Semester start

* fellowship students

First Year (Fellowship & Direct Hires)	
Fall Semester	First project
	Depth course $
	Potential matching *
Spring Semester	Second project
	Candidacy exam
	Definitive matching *

* fellowship students
$ EPFL MS can get a waiver

EDIC graduation requirements: 30 credits

	PhD Students without an EPFL MS	Credits	PhD Students with an EPFL MS	Credits
Year 1 of PhD	Semester project (fall)	6	Semester project (fall)	6
	Semester project (spring)	6	Semester project (spring)	6
	Depth Course [x 1] [a]	min. 6	Depth course [a; c]	---
			Breadth [x 1] [b; c]	min. 4
	Credits - 1st Year	**min. 18**	**Credits - 1st Year**	**min. 16**
Year 2 onwards	Breadth Courses [x 2] [b]	min. 8	Breadth course [x1] [b; c]	min. 4
	EDIC course catalogue or other MS/doctoral courses	min. 4	EDIC course catalogue	min. 6
			Other MS/doctoral courses	max. 4
	Credits - 2nd Year onwards	**min. 12**	**Credits - 2nd Year onwards**	**min. 14**
	30 Credits			

a) All PhD students are required to choose a depth area: Theory & Foundations, Core AI, Systems, Visual computing, Data, Security. The passing grade for the depth course is 5.0 or better. Students have 2 attempts (fall and spring) to pass their depth course. Retake of the same course is not possible; a different course must be chosen.

b) Two other areas outside the depth area are defined as breadth. PhD students must take one breadth course of min. 4 credits in each of the two areas.

c) EPFL MS students who have obtained a grade of 5.0 in one of the depth courses prior to enrolling in EDIC have fulfilled the depth course requirement. Breadth requirements can be waived in the same way.

EDIC PhD students intern *40 internships average per year*

Industry
• Adobe
• Amazon
• Apple
• Bloomberg
• Bosch
• DeepMind
• Disney Research
• Google
• HP
• Huawei
• IBM
• Intel
• Meta
• Microsoft
• Mozilla
• Natunix
• NEC

Industry (cont.)
• Neovision
• NVIDIA
• Nokia
• Nutanix
• Oracle
• OrbiWise
• Qualcomm
• SAP
• Synopsis
• Swisscom
• Technicolor
• Uber
• VMWare
• Walt Disney
• X
• Xilinx
• Yandex

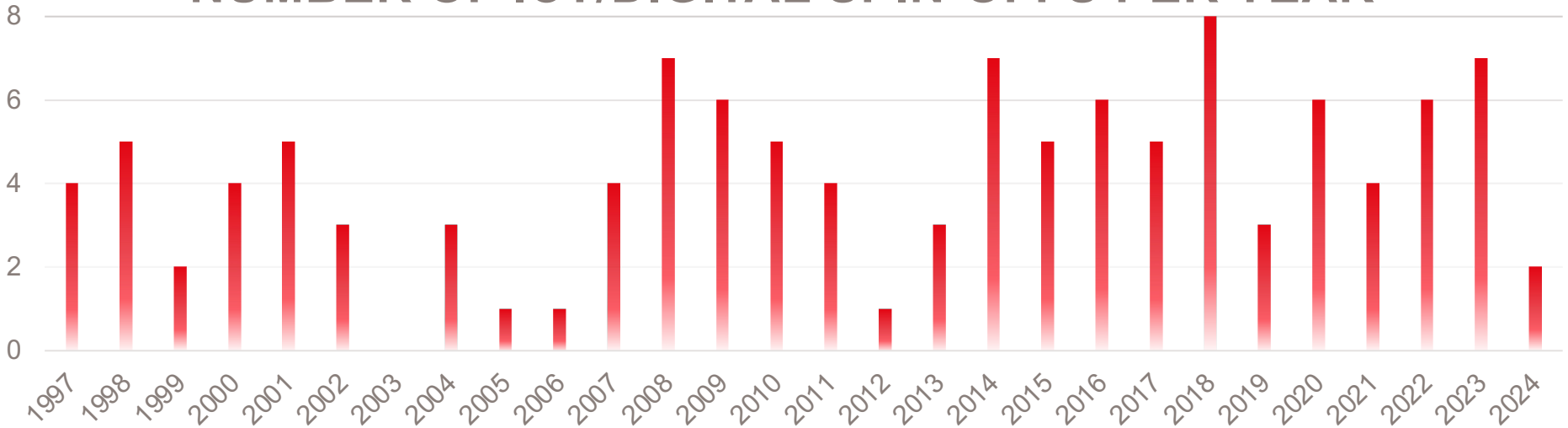
Universities
• Berkeley
• CMU
• Cornell
• ETHZ
• Haifa U.
• Harvard
• HKUST
• INRIA
• MIT
• NUS
• NYU
• Queensland U.
• Stanford
• Toronto U.
• UIUC
• Vienna U.
• Washington U.

EDIC PhD & Fellowships Laureates
2021-2024

EPFL digital/ICT spin-offs

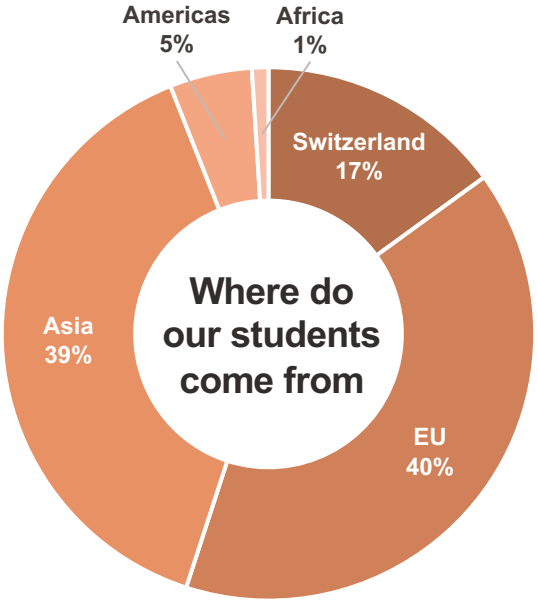
Jilion · faceshift · PIX4D · NEURAL CONCEPT · Siri · cyberhaven · PLAYFULVISION · nexthink change your perspective · Largo.ai

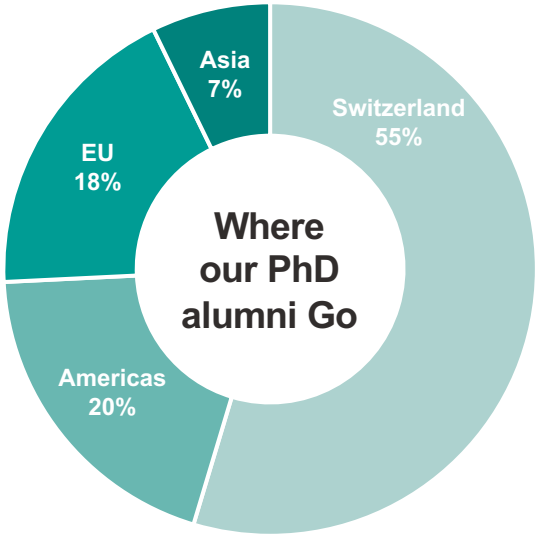
NUMBER OF ICT/DIGITAL SPIN-OFFS PER YEAR

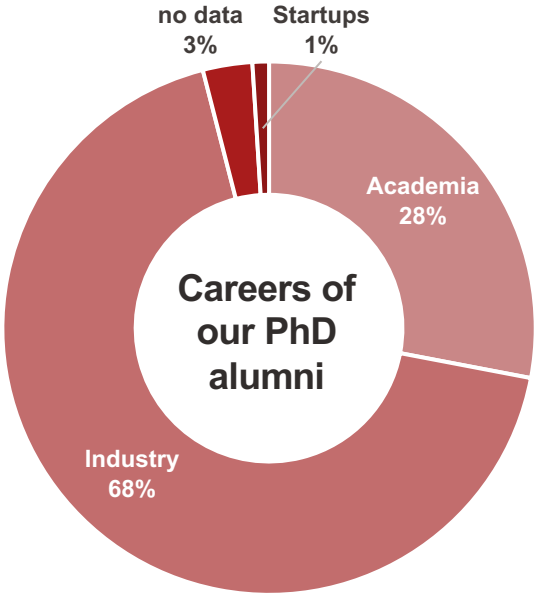


EDIC Graduates: From where to where?

1023 graduates 2008-present







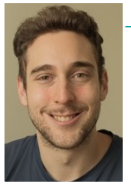
Some EDIC alumni in academia

Nada Amin

Assistant Professor, Harvard

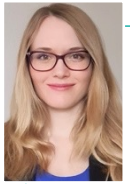
Alexandros Daglis

Assistant Professor, Georgia Tech



Manoel Horta Ribeiro

Assistant Professor, Princeton



Lana Josipović

Assistant Professor, ETHZ

Baris Kasikci

Associate Professor, Washington

Heather Miller

Assistant Professor, Carnegie Mellon

Ayfer Ozgur

Associate Professor, Stanford

Ruzica Piskac

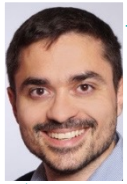
Associate Professor, Yale

Mina Konakovic-Lukovic

Assistant Professor, MIT

Immanuel Trummer

Assistant Professor, Cornell



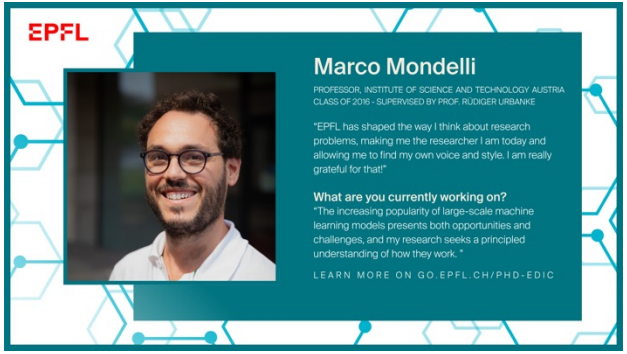
Manos Athanassoulis

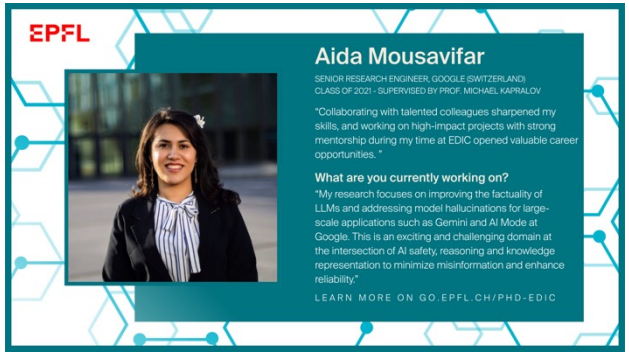
Assistant Professor, Boston

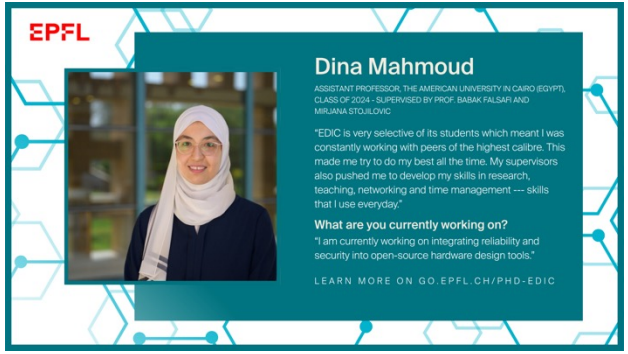
Marios Kogias

Assistant Professor, Imperial College

Inspiring journeys: a selection of EDIC alumni







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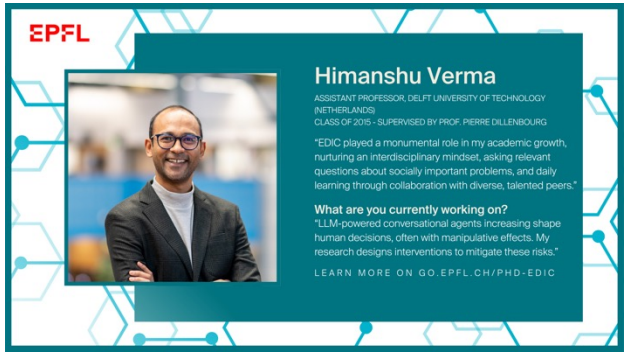
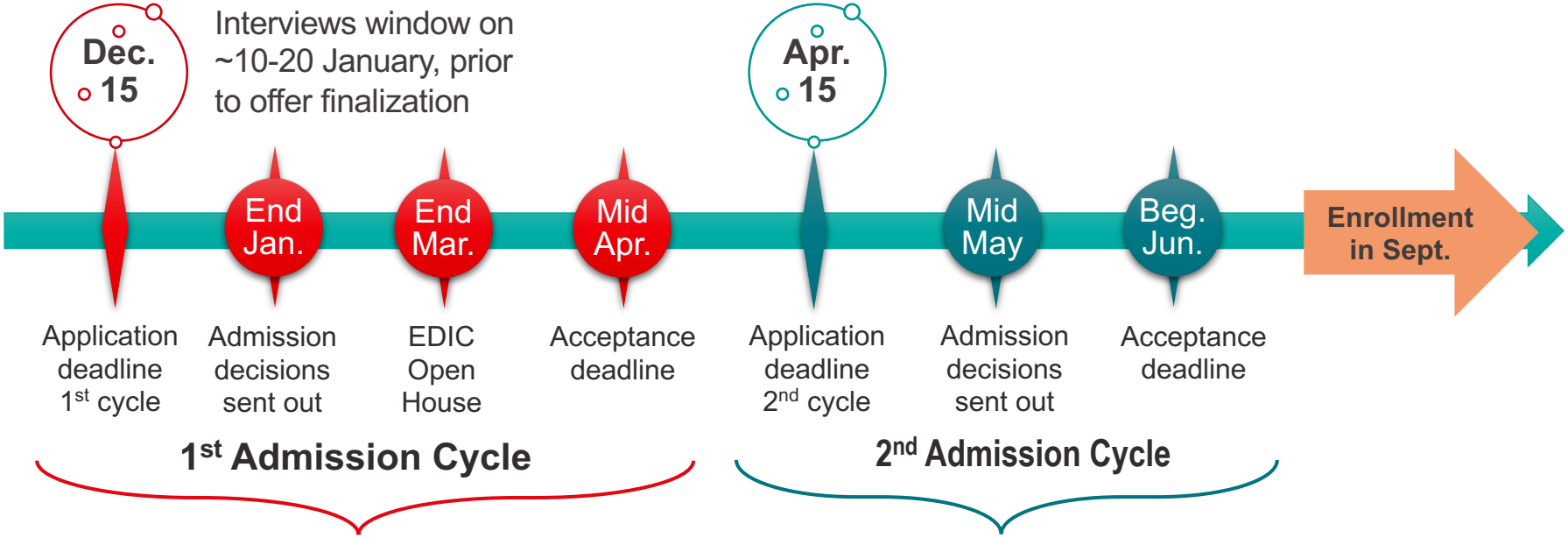


EDIC Admission Cycles

go.epfl.ch/phd-edic

- **1st admission cycle**
  - ➢ **deadline December 15**
    - Main admission cycle
    - Synchronized with US/Canada
    - Attend the Open House in Spring
    - **Apply NOW!**
- **Smaller 2nd admission cycle**
  - ➢ **deadline April 15**
    - Fewer applications, fewer admissions
    - Synchronized with Europe
    - Will not get a chance to visit the Open House

EDIC Application Timeline
go.epfl.ch/phd-edic



- Approx. 1300 applications over both rounds
- Enroll roughly 50-55 (approx. 20% from EPFL MS)
- Accept the top ~45 ranked as fellowship (approx. 20% from EPFL MS)

EDIC Application Process

go.epfl.ch/phd-edic

- See the EDIC webpage for specific requirements.
- Go through IC faculty webpages to carefully identify the research areas and the professors that are of most interest to you. You will need to include this information in the application form
- Write a Statement of Purpose (SoP). Document clearly your reasons for wishing to do a doctoral thesis with EDIC, whom you would like to work with and explain longer-term professional goals.
- Find 3 referees. Ideally, the letters should be from professors or people with whom you have collaborated, and who can comment on your ability to do research. Make sure that the letters are submitted by the application deadline.

EDIC Application: Scientific interests

- **You get to pick at least 1, and up to 3 research areas**
  - Your 1st choice of area will be indicative of the pool of students reviewed by the pertinent faculty
- **You can indicate 1 to 5 names of faculty you would like to work with**
  - Each professor has a subset of areas of expertise, make sure to align one another
  - You might indicate having already been in contact with professors. It doesn't impact positively or negatively your application

EDIC Application: Writing your SoP …

- **First paragraph**
  - Describe the general areas of research that interest you and why
- **Second to fourth paragraph**
  - Describe some research projects that you worked on. What was the problem you were trying to solve? Why was it important? What approaches did you try? What did you learn? It's fine to say that you were unable to fully solve your problem
- **Fifth and sixth paragraph**
  - Tell us a little bit about yourself and your life experiences. Why do you feel you need a PhD? Why is EDIC the right place for you? Whom would you like to work with?

EDIC Application: Reference letters

- **You need to indicate 3 contact information for reference letters**
  - Use institutional email address
  - After validation of the application, the system will invite them to submit their recommendation
  - The process is entirely electronic and confidential
- **The deadline is the same as the application (Dec 15 or April 15)**
  - Validate your application early enough to allow referees the time to submit their letter

In conclusion ...

- Rich intellectual environment, with international access
- World-renowned faculty to collaborate with
- Generous resources and rich network of academic and industrial partners
- Value close interaction between students and faculty within a flat organization structure
- Access to stellar international careers as academics, scientists, and entrepreneurs

Need more information …

go.epfl.ch/phd-edic

edic@epfl.ch