A vibrant campus
School of Computer and Communication Sciences - IC

- Internationally highly ranked
- 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
- Information theory to datacenters
<table>
<thead>
<tr>
<th>Rank</th>
<th>University Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Massachusetts Institute of Technology (MIT)</td>
<td>Cambridge, United States</td>
</tr>
<tr>
<td>2</td>
<td>Stanford University</td>
<td>Stanford, United States</td>
</tr>
<tr>
<td>3</td>
<td>Carnegie Mellon University</td>
<td>Pittsburgh, United States</td>
</tr>
<tr>
<td>4</td>
<td>National University of Singapore (NUS)</td>
<td>Singapore, Singapore</td>
</tr>
<tr>
<td>5</td>
<td>University of California, Berkeley (UCR)</td>
<td>Berkeley, United States</td>
</tr>
<tr>
<td>6</td>
<td>University of Oxford</td>
<td>Oxford, United Kingdom</td>
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<tr>
<td>7</td>
<td>Harvard University</td>
<td>Cambridge, United States</td>
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<tr>
<td>8</td>
<td>University of Cambridge</td>
<td>Cambridge, United Kingdom</td>
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<tr>
<td>9</td>
<td>EPFL</td>
<td>Lausanne, Switzerland</td>
</tr>
<tr>
<td>10</td>
<td>ETH Zurich - Swiss Federal Institute of Technology</td>
<td>Zürich, Switzerland</td>
</tr>
</tbody>
</table>
IC at a glance

- **ATCS**: Algorithms & CS Theory
- **ICT**: Information & Comm. Theory
- **AIML**: Artificial Intelligence & Machine Learning
- **DMIR**: Databases & Info. Retrieval
- **SIP**: Signal & Image Processing
- **DE**: Digital Education
- **CAIS**: Architecture & Circuits
- **SN**: Operating Systems & Networks
- **PLFM**: Languages & Formal Methods
- **SC**: Security & Privacy
- **VC**: Visual Computing
- **HCI**: Human Computer Interaction

- Theory, foundations, fundamental limits…
- Learning from data, extracting knowledge, transforming data…
- Building real systems, all layers…
- Interfacing with humans…
theory, foundations, fundamental limits...

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.

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

Rachid Guerraoui
Passionate, persistent but cool.
I'm interested in the principles of distributed computing with a recent focus on epidemic algorithms, secure distributed machine learning protocols as well as scalable implementations of virtual currencies.

https://dcl.epfl.ch/

Ola Svensson
Enthusiastic, persistent, happy.
My research interests are in theoretical computer science with a focus on developing new algorithmic techniques with the potential to overcome longstanding barriers for efficient computation.

https://theory.epfl.ch/osven/

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?

https://theory.epfl.ch/mika/

Statistical Physics of Computation
http://artax.karlin.mff.cuni.cz/~zdebl9am/
learning from data, extracting knowledge, transforming data ...

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

Natural Language Processing
https://atcbosselut.github.io/

Bob West
Data is beautiful!

My research distills insights from real-world problems by developing and applying tools in natural language processing, computational social science, and NLP.

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

Digital Vocation Education and Training
https://www.epfl.ch/labs/d-vet/

EPFL

Antoine Bosselut
Open-minded, energetic, collaborative.

I focus on developing language systems that model challenges related to commonsense reasoning over knowledge in text. How can we endow machines with human-like reasoning capabilities?

https://www.epfl.ch/labs/tml/

EPFL

Nicolas Flammarion
Passionate, perspective and supportive.

I’m working on developing new algorithmic and theoretical tools to make machine learning more robust and practical. My research interests are at the interface between optimization and statistics.

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EPFL

Tanja Käser
Enthusiastic, perfectionist, wants to have an impact on society.

My research interests are at the interface of machine learning and education. I’m working on developing novel models and algorithms which will help understand and improve human learning.

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

Digital Vocation Education and Training
https://www.epfl.ch/labs/d-vet/
Building systems, all layers ...

HexHive
https://hexhive.epfl.ch/

Security and Privacy Engineering
https://www.epfl.ch/labs/spring/

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

Integrated Systems
https://www.epfl.ch/labs/lsi/
Building real systems, all layers ...

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

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

Sanidhya Kashyap
Avid, resourceful, and thoughtful.

My research interests are broadly in the area of systems with a particular focus on designing scalable, concurrent, and robust systems software for evolving heterogeneous machines.

https://sanidhya.github.io/
Interfacing with humans ...
Broad impact on computer science

<table>
<thead>
<tr>
<th>University</th>
<th>#papers</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIT</td>
<td>142</td>
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<td>Stanford University</td>
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<td>Carnegie Mellon University</td>
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<td>UC Berkeley</td>
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<td>Tsinghua University</td>
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<td>University of Oxford</td>
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<td>University of California</td>
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<tr>
<td>Peking University</td>
<td>63</td>
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<tr>
<td>University of Washington</td>
<td>63</td>
</tr>
<tr>
<td>Ecole Polytechnique Fédérale de Lausanne</td>
<td>58</td>
</tr>
</tbody>
</table>
I&C centers

Swiss Data Science Center

Center for Digital Trust

CIS Center for Intelligent Systems

BERNOULLI CENTER FOR FUNDAMENTAL STUDIES

Center for Quantum Science and Engineering
Why a PhD?

- PhD is about where the IT 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 IT 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 (~$50k)
- Award winning faculty and students
- Strong industrial liaison

In numbers

- 300 PhDs, among campus largest
- 90% international students
- 45-50 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” (older PhD)
  - Faculty member beyond (from outside area)
  - Someone to talk to in general
Your first year with EDIC ...

<table>
<thead>
<tr>
<th><strong>PhD Orientation</strong></th>
<th><strong>First Year</strong></th>
<th><strong>First Year</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>(2 weeks)</td>
<td>(Fellowship &amp; Direct Hires)</td>
<td>(Fellowship &amp; Direct Hires)</td>
</tr>
<tr>
<td><strong>September</strong></td>
<td>Fall Semester</td>
<td>First project</td>
</tr>
<tr>
<td>(optional French classes)</td>
<td>Depth course</td>
<td>Potential matching *</td>
</tr>
<tr>
<td>Administrative tasks</td>
<td>Spring Semester</td>
<td>Second project</td>
</tr>
<tr>
<td>Research seminars</td>
<td>Candidacy exam</td>
<td>Definitive matching *</td>
</tr>
<tr>
<td>Social events</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Matching process *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semester start</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mid-September</strong></td>
<td></td>
<td></td>
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<tr>
<td>* fellowship students</td>
<td></td>
<td></td>
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</tbody>
</table>
EDIC PhD students intern ~40 internships average per year

<table>
<thead>
<tr>
<th>Industry</th>
<th>Industry (cont.)</th>
<th>Universities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adobe</td>
<td>Neovision</td>
<td>Berkeley</td>
</tr>
<tr>
<td>Amazon</td>
<td>NVIDIA</td>
<td>CMU</td>
</tr>
<tr>
<td>Apple</td>
<td>Nokia</td>
<td>Cornell</td>
</tr>
<tr>
<td>Bloomberg</td>
<td>Nutanix</td>
<td>ETHZ</td>
</tr>
<tr>
<td>Bosch</td>
<td>Oracle</td>
<td>Haifa U.</td>
</tr>
<tr>
<td>DeepMind</td>
<td>OrbiWise</td>
<td>Harvard</td>
</tr>
<tr>
<td>Disney Research</td>
<td>Qualcomm</td>
<td>HKUST</td>
</tr>
<tr>
<td>Facebook</td>
<td>SAP</td>
<td>INRIA</td>
</tr>
<tr>
<td>Google</td>
<td>Synopsis</td>
<td>MIT</td>
</tr>
<tr>
<td>HP</td>
<td>Swisscom</td>
<td>NUS</td>
</tr>
<tr>
<td>Huawei</td>
<td>Technicolor</td>
<td>NYU</td>
</tr>
<tr>
<td>IBM</td>
<td>Twitter</td>
<td>Queensland U.</td>
</tr>
<tr>
<td>Intel</td>
<td>Uber</td>
<td>Stanford</td>
</tr>
<tr>
<td>Microsoft</td>
<td>VMWare</td>
<td>Toronto U.</td>
</tr>
<tr>
<td>Mozilla</td>
<td>Walt Disney</td>
<td>UIUC</td>
</tr>
<tr>
<td>Natunix</td>
<td>Xilinx</td>
<td>Vienna U.</td>
</tr>
<tr>
<td>NEC</td>
<td>Yandex</td>
<td>Washington U.</td>
</tr>
</tbody>
</table>
EDIC PhD & Fellowships Laureates
Since 2016…
EDIC Graduates: From where to where?
592 graduates 2006-2020

Where do our students come from

- Asia: 32%
- EU: 44%
- Switzerland: 18%
- Americas: 5%
- Africa: 1%

Where our PhD alumni Go

- Switzerland: 55%
- EU: 17%
- US: 21%
- Asia: 7%

Careers of our PhD alumni

- Academia: 25%
- Industry: 75%
<table>
<thead>
<tr>
<th>Name</th>
<th>University</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nada Amin</td>
<td>Harvard</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Amin Karbasi</td>
<td>Yale</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Ayfer Ozgur</td>
<td>Stanford</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Immanuel Trummer</td>
<td>Cornell</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Alexandros Daglis</td>
<td>Georgia Tech</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Baris Kasikci</td>
<td>Michigan</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Ruzica Piskac</td>
<td>Yale</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Manos Athanassoulis</td>
<td>Boston</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Hamed Hassani</td>
<td>UPenn</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Heather Miller</td>
<td>Carnegie Mellon</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Tiark Rompf</td>
<td>Purdue</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>El Mahdi El Mhamdi</td>
<td>Ecole Polytechnique</td>
<td>Assistant Professor</td>
</tr>
</tbody>
</table>
And recently appointed

- Lana Josipovic, Assistant Professor, ETH
- Marios Kogias, Assistant Professor, Imperial College
- Mina Konakovic-Lukovic, Assistant Professor, MIT
EDIC Admission Cycles
go.epfl.ch/phd-edic

- **1st** admission cycle
  - **deadline December 15**
  - Main admission cycle
  - Synchronized with US/Canada
  - Visit 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

- **Dec. 15**: Application deadline 1st cycle
- **End Jan.**: Admission decisions sent out
- **End Mar.**: EDIC Open House
- **Mid Apr.**: Acceptance deadline
- **Apr. 15**: Application deadline 2nd cycle
- **Mid May**: Admission decisions sent out
- **Beg. Jun.**: Acceptance deadline
- **Enrollment in Sept.**

**1st Admission Cycle**
- Approx. 1000 applications over both rounds
- Enroll roughly 50-55 (of which 20% from EPFL MS)
- Accept the top ~45 ranked as fellowship (of which 20% from EPFL MS)

**Interviews window on 10-17 January, prior to offer finalization**
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: 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?
In conclusion ...

- Rich intellectual environment with international focus
- Graduate students collaborate with world-renowned faculty
- Benefit from generous resources and rich network of academic and industrial partners
- Value close interaction between students and faculty within a flat organization structure
- EDIC alumni pursue stellar international careers as academics, scientists, and entrepreneurs
Sandra Siby

EDIC PhD Representative
EDIC Ambassadors are waiting for you, in breakout rooms

- Amirkeivan, Sharif University
- Tugrulcan, Bilkent U, Ankara
- Sandra, ETH
- Greg, Wroclaw U
- Lucas, Paris-Sud
- Akhil, IIT Kanpur
- Stefan, U Novi Sad
- Michele, PoliMi, EPFL
Need more information ...
go.epfl.ch/phd-edic
edic@epfl.ch