Doctoral Program in Computer & Communication Sciences (EDIC)
Prof. Matthias Grossglauser
EDIC Program Director
EPFL today

Campus
10,686 students, of whom 2,142 PhD students (2017)
343 faculty (2017)
5,996 staff (2017)

Spending
CHF 623M from State budget
CHF 311M other funding (EU, SNSF, private...)
Total: CHF 943M (2017)
Why a PhD?

- PhD is about where 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
What is a PhD?

- Choose and define an important problem
  - One that no one has solved before
  - One that makes a difference in the field

- Find an effective solution
  - Learn to read and understand prior work
  - Learn to conduct research

- Disseminate
  - Present your results in writing and orally to the community and industry
Path to a PhD

Courses → TAing → Publish → Research → Conferences → Internships → Defense → 4~6 years → Diploma
Computer & Communication Sciences: Who we are?

- Internationally highly ranked
- 45 faculty members
- From peer schools (e.g., Berkeley, CMU, Cornell, MIT, Stanford, ...)
- Internationally recognized (e.g., Turing Award, US National Academies, ACM/IEEE Fellows)
- Strong industrial liaison
- Information theory to datacenters
13 research areas, 46 IC labs, 17 affiliated...

theory, foundations, fundamental limits...

interfacing with humans and nature...

building real systems, all layers...

learning from data, extracting knowledge, transforming data
EDIC Program

In a nutshell:
- 4-6 years
- Program entirely in English
- Competitive salary (~51kCHF)
- One-year fellowships to outstanding applicants

In numbers:
- 250 PhD students, one of the largest program on campus
- 50-60 join per year, from pool of ~800
- ~5 PhD students per IC faculty (+ affiliated faculty)
EDIC – Admission Cycle

1st admission cycle (deadline December 15th)
  – This is the main admission cycle
  – Synchronized with US/Canada
  – Apply for this round if you can!

Smaller 2nd admission cycle (deadline April 15th)
  – Fewer applications, fewer admissions
  – Synchronized with Europe
  – Will not get a chance to visit the EDIC Open House
EDIC – Admission Cycle

1st Admission Cycle
- Application deadline 1st cycle: Dec. 15
- Admission decisions sent out: Mid Jan.
- 2-day Open House: End March
- Acceptance deadline: End April

2nd Admission Cycle
- Application deadline 2nd cycle: April 15
- Admission decisions sent out: End May
- Acceptance deadline: Mid. June

Sept. Enrollment

- Over 800 applications – 50 from EPFL students
- Enroll roughly 60 (of which 30% from EPFL)
- Accept the top 45 ranked as “fellowship” (of which 20% from EPFL)
EDIC – Application Process

- See the EDIC webpage for specific requirements
- Go through IC faculty webpages to identify the research areas and the professors that are of most interest to you
- Write your *Statement of Purpose* (SoP). Document clearly 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. Ask someone who can comment on your academic performance and your potential to do solid research with specific examples. Make sure that the letters are submitted by the application deadline!
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?
During your PhD with EDIC

- You will have an advisor/co-advisor
  - Will be with you until you graduate
  - Courses, research, career planning
  - Official annual feedback (evaluations)

- You will have a mentor
  - An EDIC program committee contact person + a “buddy” (older PhD student) for the 1st year
  - An IC faculty member beyond (from outside area)
  - Someone to talk to in general
Industrial Fellowships / Internships

- Top students participate in industrial fellowships and internships
- Highly selective
- Many include internships
- Students also intern with our industrial affiliates
A partial list where EDIC PhD students intern ...

35-40 internships on average per year

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<tr>
<th>Industry</th>
<th>Industry (cont.)</th>
<th>Universities</th>
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<tr>
<td>Adobe</td>
<td>Neovision</td>
<td>Carnegie Mellon</td>
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<td>Oracle</td>
<td>Harvard</td>
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<td>HKUST, Hong Kong</td>
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We nominate our students & graduates for awards and scholarships.
EDIC Graduates – From where to where?
450 Theses awarded [2006-2016]

Where do they go?
- Switzerland [45%]
- USA [21%]
- UK [4%]
- Germany [3%]
- France [3%]
- Other [24%]

Europe [40%]
- France 7%
- Romania 6%
- Serbia 5%
- Italy 4%
- Greece 3%

Asia [30%]
- Iran 9%
- India 6%
- China 6%
- Turkey 5%

Americas [4%]

Africa [1%]
EDIC – Where do our graduates go?

- Industry: 65%
- Academia: 30%
- No data: 5%

2006-2016
450 Theses awarded
EDIC – Where do our graduates go?

Ivan Dokmanic
Assistant Professor
University of Illinois

- EPFL Doctorate Award – 2016
- Denantes Thesis Award – 2015
- Google European Doctoral Fellowship – 2014

*Listening to distances and hearing shapes: Inverse problems in room acoustics and beyond [2015]*
Thesis Advisor: Prof. Martin Vetterli, Audiovisual Communications Lab

Volodymyr Kuznetsov
CEO & Founder
Cyberhaven

- Cyber security startup
- His work adopted in LLVM, Chrome, Android
- 2 issued patents in the USA

*Techniques for strengthening the security and reliability of systems software using program analysis and instrumentation [2016]*. Thesis Advisor: Prof. George Canda, Dependable Systems Lab

Pinar Tözun
Research Staff Member
IBM Almaden Research

- ACM Sigmod Jim Gray Doctoral Award, Honorable Mention – 2016
- Expert at SIGMOD 2016 for the Careers in Industry Panel
- Current research focuses on scalability & efficiency of data mgmt. systems

*Transactions Chasing Scalability and Instruction Locality on Multicores [2014]*
Thesis Advisor: Prof. Anastasia Ailamaki, Data-Intensive Applications and Systems Lab

EDIC – Where do our graduates go?
In conclusion ...

- Rich intellectual environment with international focus
- Graduate students collaborate with world-renowned faculty
- Benefit from generous resources and a 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
Need more information ...

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