Swiss SKA Day
May 18, 2016

Welcome to Ecole Polytechnique
Fédérale de Lausanne

Karl Aberer, Vice-president for Information Systems
### EPFL History

Looking back…

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1853</td>
<td>EPFL's foundation</td>
<td>Ecole spéciale de Lausanne</td>
</tr>
<tr>
<td>1946</td>
<td>Act on the Federal Institutes of Technology</td>
<td>Ancien Hôtel Savoy, 29-33 avenue de Cour, Lausanne</td>
</tr>
<tr>
<td>Today</td>
<td>Present facilities</td>
<td>Ecublens-Dorigny</td>
</tr>
</tbody>
</table>

#### EPUL vs. EPFL

<table>
<thead>
<tr>
<th></th>
<th>EPUL</th>
<th>EPFL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>11</td>
<td>1,293</td>
</tr>
<tr>
<td>Faculty</td>
<td>56</td>
<td>338 (2014)</td>
</tr>
</tbody>
</table>

Looking back… More than 150 years
EPFL today

Campus (2014)
9,921 students, of whom 2,032 PhD students
338 faculty
4,508 staff (scientific & technical)

Spending (2014)
CHF 645M from State budget
CHF 251M other funding (EU, SNSF, private...)
Total: CHF 896M
EPFL’s three missions according to the Federal Act

Education
of scientists, engineers & architects

Research
Advanced, fundamental & applied

Technology Transfer
to industry & society
Origin of Students (Bachelor+Master+PhD)

9921 Students in 2014

Europe 38.4%
- France 20.8%
- Germany 2.1%
- Italy 4.4%

Switzerland 48.7%

Asia & Oceania 7.0%

Americas 2.6%

Africa 3.3%
MOOCs (Massive Open Online Courses)

September 2012 – February 2016: 1’173’888 registered participants in 186 countries
58'077 users passed EPFL MOOCs with statement of accomplishment
## Rankings 2015

### EUROPE

<table>
<thead>
<tr>
<th>Rank</th>
<th>QS</th>
<th>Eng. &amp; Technology</th>
<th>Global performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Eng. &amp; Technology</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>THE (2014)</td>
<td>Eng. &amp; Technology</td>
<td>12</td>
</tr>
<tr>
<td>37</td>
<td>Shanghai</td>
<td>Eng./Tech. &amp; Computer Science</td>
<td>14</td>
</tr>
<tr>
<td>2</td>
<td>Leiden</td>
<td>PP (top-10%) indicator</td>
<td>15</td>
</tr>
</tbody>
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### MONDE

<table>
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<th>QS</th>
<th>Eng. &amp; Technology</th>
<th>Global performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Eng. &amp; Technology</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>THE (2014)</td>
<td>Eng. &amp; Technology</td>
<td>34</td>
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<tr>
<td>14</td>
<td>Shanghai</td>
<td>Eng./Tech. &amp; Computer Science</td>
<td>103</td>
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<tr>
<td>15</td>
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**THE under 50: 1er**

**EPFL: best young university in the world**
European Recognition - ERC Grants (European Research Council)

EPFL 4th in Europe, cumulative data for 2007-2013

Cambridge: 116
Oxford: 108
ETHZ: 81
EPFL: 76
U.C. London: 74
H.U. of Jerusalem: 68
Weizmann: 66
Imperial College: 60
K.U. Leuven: 38

36 Advanced grants
40 Starting grants
Development of EPFL start-up

217 start-up created between 2000 and 2015
A culture of start-ups – a few EPFL success stories

KANDOU TECHNOLOGIES
Ultra-fast electronic buses
$10M from private investors
Founded in 2011

TYPESAFE
Scala Language used by Twitter,
$21M since May 2011 with US VCs
Founded in 2010

ALEVA
Electrodes for neurosurgery
Raised CHF14M with Swiss Venture Capital
Founded in 2008

SIRI
EPFL Licence,
Acquisition by Apple in May 2011
Founded in 2008 in Silicon Valley

NEXTHINK
Software for businesses
More than CHF16M with Swiss and French VCs
More than 60 employees
Founded in 2004

SENSIMED
Active lenses for glaucoma prevention
Raised CHF45M with Swiss & German VCs
Founded in 2003
EPFL Innovation Park

... and over 110 start-ups
Big Data and Digital Science
Challenges for Universities

**Education**
- Digital revolution in education: massive open online courses (MOOCs), data-driven education
- Educating for the Digital Revolution: new profiles needed: Data Scientists, Digital Medicine, Cyber-Security etc.

**Research**
- Big Data for Research (data-driven science): affecting all disciplines (Humanities, Health, Environment)
- Research for Big Data: cloud computing, machine learning, cyber-security

**Impact**

**Needs**
Strategic Projects in Data-Driven Science

Human Brain Project
- EU FET Flagship project
- 1 billion € budget
- Consortium: 400 researchers, 113 institutions from 24 countries

Health 2030: The Lemanic Center for Personalized and Digital Health
- Sequencing 10’000 genomes
- Combine with factors influencing personal health: from environment to media
- Data-driven clinical research and personalized health care
- Important privacy problems with medical and genomic data
Research for Big Data

EcoCloud Research Center on Energy-efficient Cloud Computing

- **Mission**
  - Holistic approach to Green-IT
  - Mobile phone energy efficiency in Datacenters!
  - Maximizing value from data
  - 16 faculty, 50 researchers
  - $3M/year budget
Swiss Data Science Center

Initiative of the ETH Board

• Support for developing digital science in different research disciplines
• 60 Mio investment for 2017-2020
• Data science education at master level

Computer Science

- Data Management
- Machine Learning & Data Analytics

Mathematics

- Programming Models
- Security & Privacy
- Information Systems & Cloud Computing
- Statistics
Enjoy the Conference and the Campus!