



ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

Ecole polytechnique fédérale de Lausanne

Trust in the Digital Age: A Look at Education and Research

Martin Vetterli, Applied Machine Learning Days, 30.1.2018



OUTLINE


1. Research in the Digital Age

2. Digital Education @ EPFL

3. Concluding Remarks

History: „Machine Learning“ in 18th Century ☺

Made in Switzerland



Les Jaquet D oz
et Les chat
a neuchatel

Today: Data is the new oil



Economist cover, May 2017

... but: the oil needs to be refined !



Microscopes



Telescopes



Datascores ?

SWISS DATA SCIENCE CENTER

"A complex journey made simple"

[VIEW MORE](#)

www.datascience.ch

2) EPFL Centre for **Digital Trust**



General Data Protection Regulation
→ *coming May 28, 2018*



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2. Digital Education @ EPFL

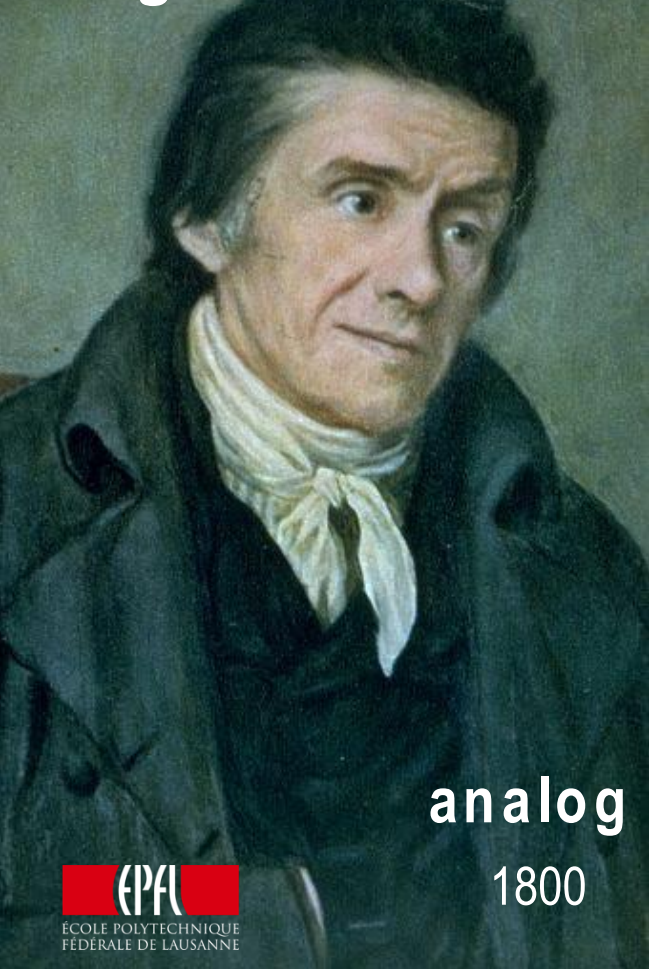
3. Concluding Remarks

Digital Skills



«I'm afraid that I have to inform you that the kidney went to a patient who can code.»

Digital Skills over the Centuries



analog

1800



digital

1990s



deepar.io

AI ?

2016



2017 Master in Data Science

2017 Swiss Data Science Center

2016 Extension School

2012 MOOCs Fabrik

2012 Digital Humanities Laboratorium

2003 Internet pour les filles

2002 School of Computer & Communication Science

1991 Section Communication Systems

1987 Computer Science Department

1981 Section Computer Science



NEW: Computational Thinking

Standard « polytechnic » education
based on two pillars

Mathematics
rigorous reasoning

Physics
modeling and
abstraction



New EPFL curriculum:
third pillar

«Computational Thinking»
reasoning about problems
in terms of computations,
data, information and
algorithms

Reasoning about problems in terms of computations, data, information and algorithms

“Computer Sciences” or “Informatics” ?



→ Harvard: embedding Ethics into regularly offered Computer Science courses

EPFL Extension School



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OUR MISSION IS SIMPLE

Enabling everyone to learn the skills necessary to benefit

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Cyberspace: Governance and Regulation



Cyberspace: A Digital Geneva Convention

1.

No targeting of tech companies, private sector, or critical infrastructure

2.

Assist private sector efforts to detect, contain, respond to, and recover from events

3.

Report vulnerabilities to vendors rather than to stockpile, sell or exploit them

4.

Exercise restraint in developing cyber weapons and ensure that any developed are limited, precise, and not reusable

5.

Commit to nonproliferation activities to cyberweapons

6.

Limit offensive operation to avoid a mass event



Martin Vetterli
@MartinVetterli

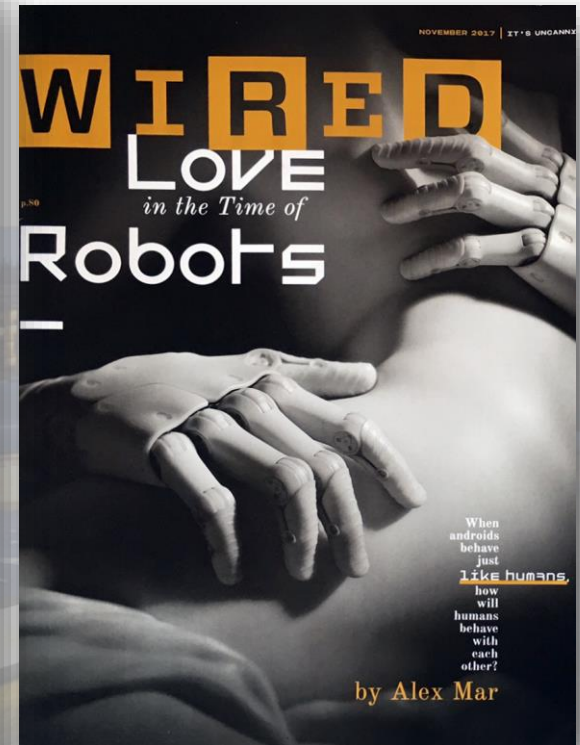
Very important and timely issue: Protecting the Humanitarian Cyberspace, with @PMaurerICRC of @ICRC and @BradSmi of @Microsoft #WEF18 @Davos @wef @EPFL_en @EPFL



Economy: Danger of "Cuckoo Economies"

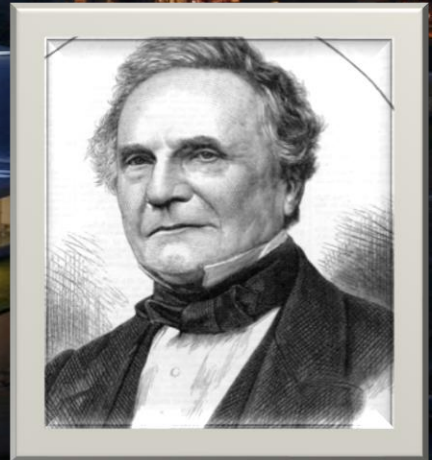
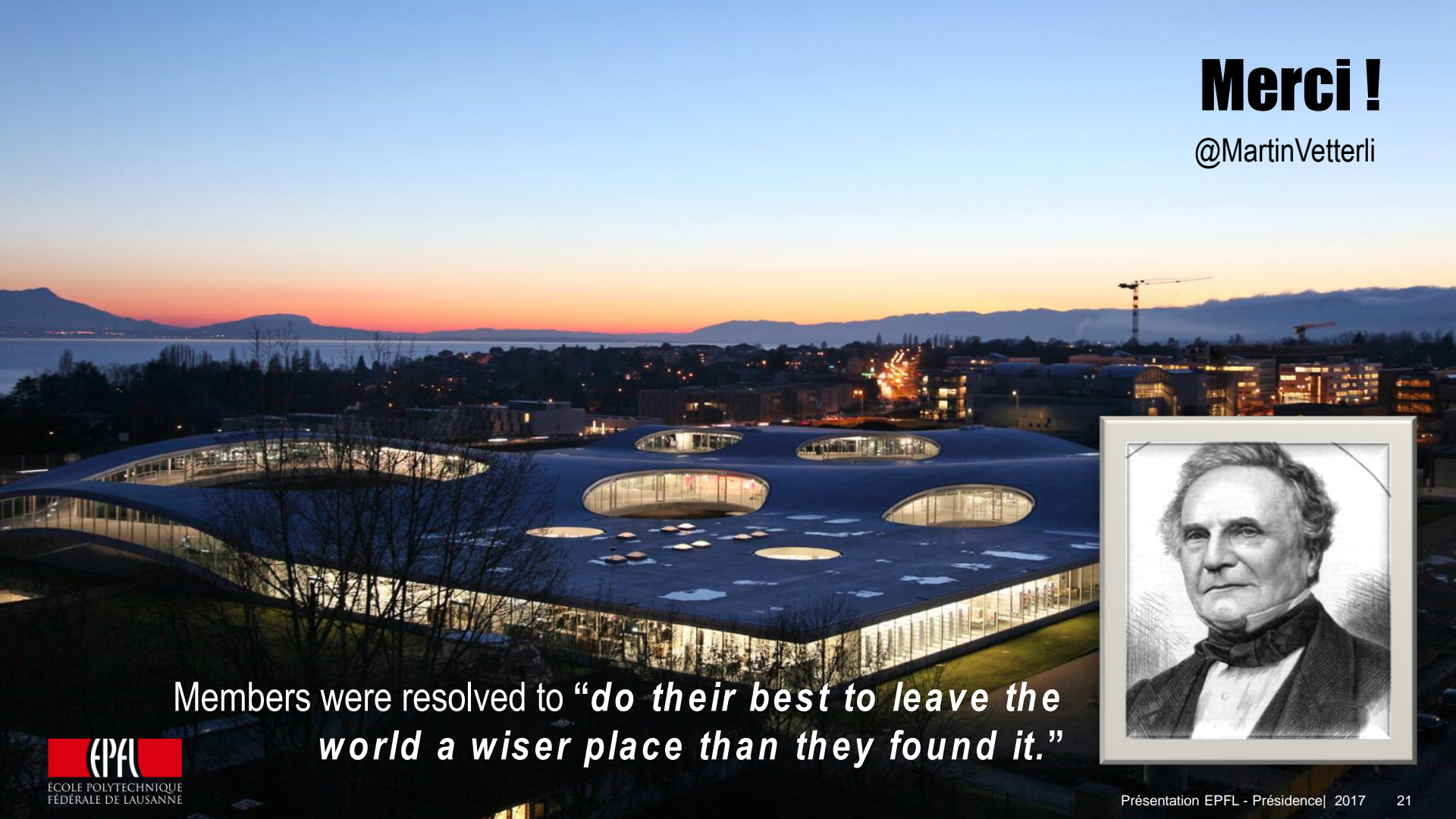


We Work for Society



Merci !

@MartinVetterli



Members were resolved to *“do their best to leave the world a wiser place than they found it.”*