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HAUTE ÉCOLE
D'INGÉNIERIE ET DE GESTION
DU CANTON DE VAUD

www.heig-vd.ch

Capacity Building in Geomatics - HEIG-VD

Prof. Béatrice Simos-Rapin – march 20th 2015

Hes·so
Haute Ecole Spécialisée
de Suisse occidentale

HEIG-VD is…

Cheseaux

St-Roch

Y-Parc

- Engineering
- Business Administration

HEIG-VD: the biggest campus of the HES-SO (University of Applied Sciences Western Switzerland)

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HEIG-VD is…

1 school

2 domains

3 campuses

4 missions

- Professional Education at University Level
- Continuing Education
- Applied Research and Development
- National and International Relations

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Our Bachelor and Master programs

10 programs BSc

- Business Administration
- Telecommunication
- Computer Science & Engineering
- Energy and Environmental Engineering
- Electrical Engineering
- Systems Engineering
- Media Engineering
- Microengineering
- Engineering and Management
- Geomatics

4 programs MSc HES-SO

- Business Administration
- Engineering
- Land Management
- Interdisciplinary Innovation for Product & Business Development

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Courses

Bachelor of Science HES-SO in

Business Administration

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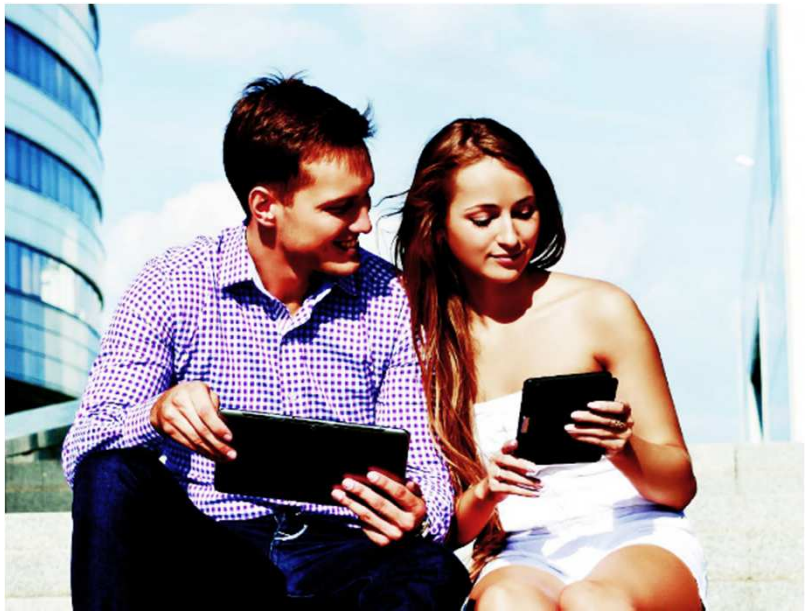
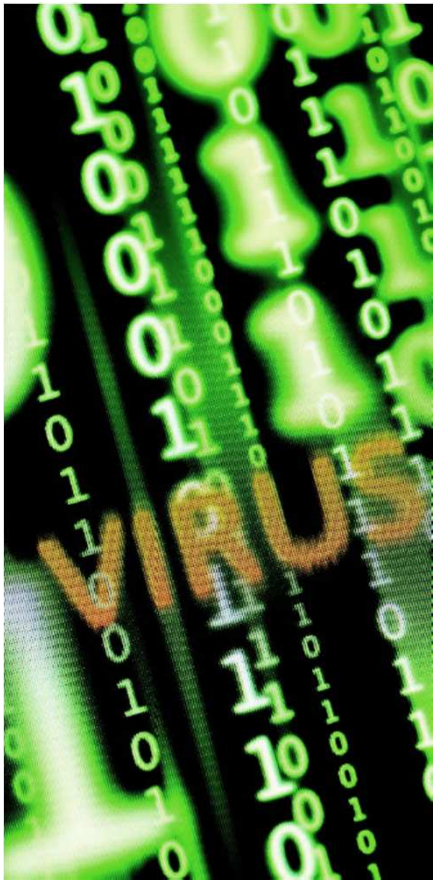
Courses

Bachelor of Science HES-SO in

Telecommunication

- Computer Networks
- Information Security





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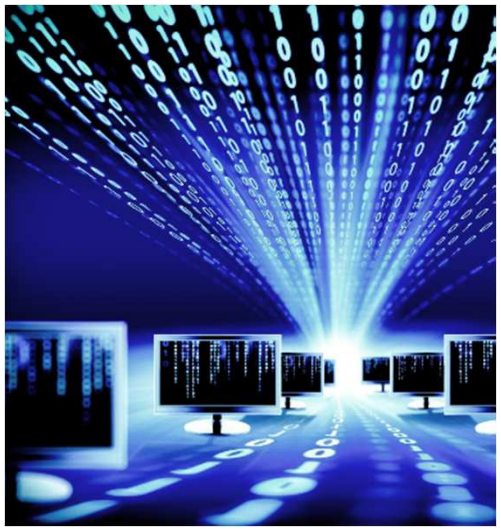
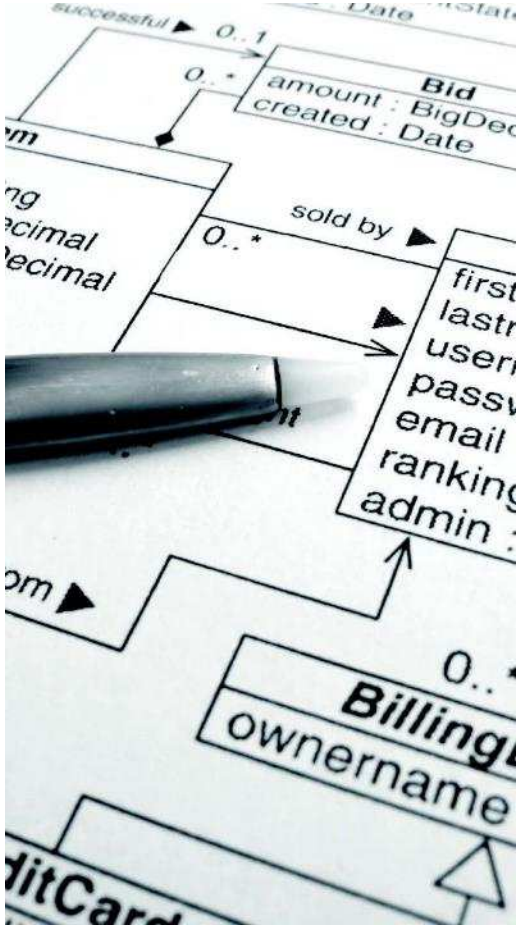
Courses

Bachelor of Science HES-SO in

Computer Science & Engineering

- Software Engineering
- Embedded Systems
- Management Systems





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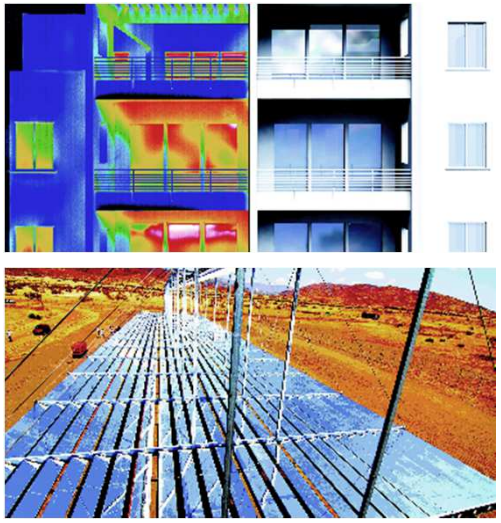
Courses

Bachelor of Science HES-SO in

Energy and Environmental Engineering

- Energy Efficient Construction
- Industrial Thermal Engineering
- Thermotronics



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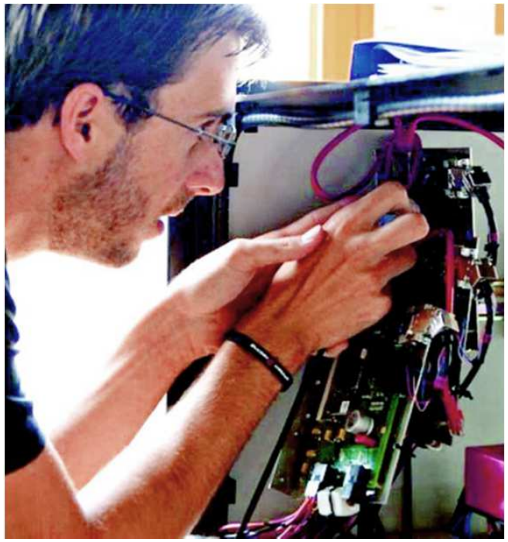
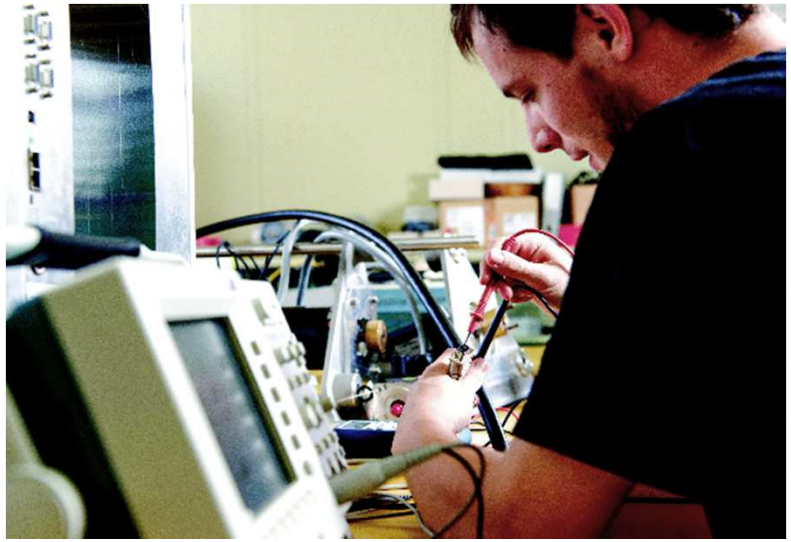
Courses

Bachelor of Science HES-SO in

Electrical Engineering

- Embedded Electronics and Mecatronics
- Energy Systems
- Electronics and Automation





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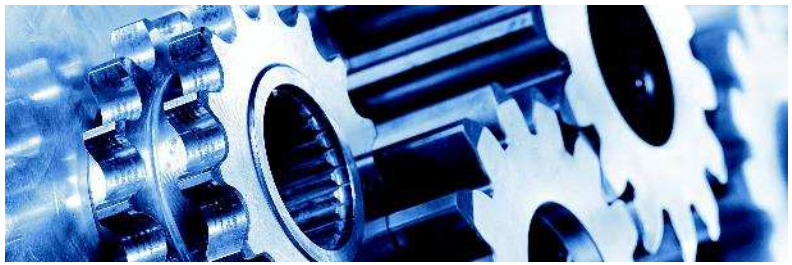
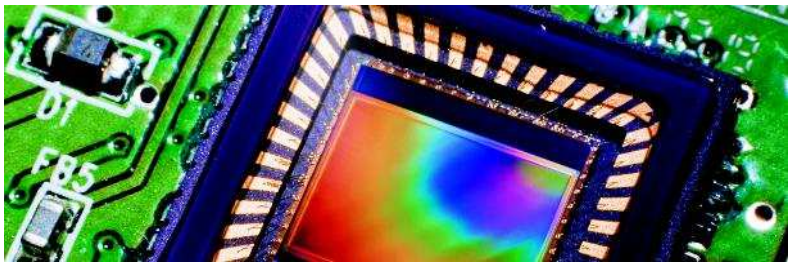
Courses

Bachelor of Science HES-SO in

Microengineering

- *Mecatronics* (option)





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Courses

Bachelor of Science HES-SO in

Systems Engineering

- Mechanical Design
- Engineering

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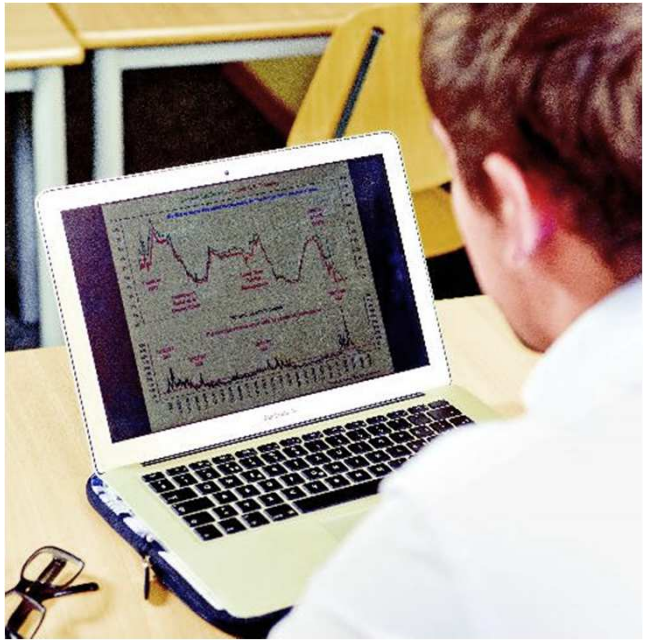
Courses

Bachelor of Science HES-SO in

Engineering and Management



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Courses

Bachelor of Science HES-SO in

Media Engineering

- Print and Interactive Media Management
- Information Technology Management

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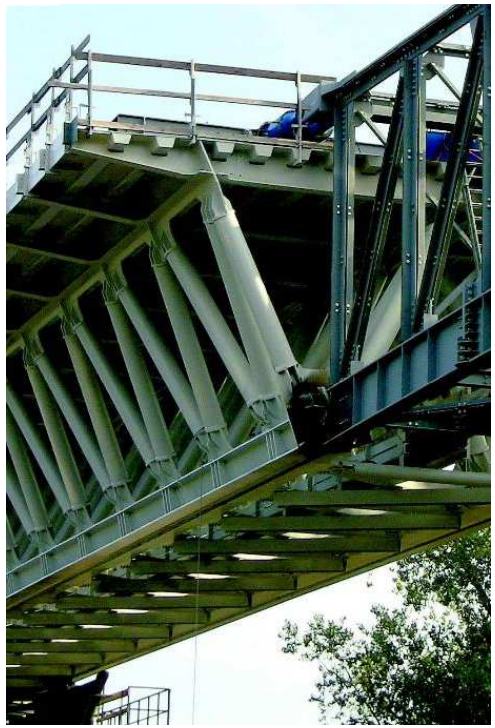
Courses

Bachelor of Science HES-SO in

Geomatics

- Geomatics and Land Management
- Construction and Infrastructures
- Environmental Technologies



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HEIG-VD facts and numbers

13	Research Institutes and Groups
17	Millions (CHF) used for Research and Development projects
59	Nationalities
60	Posgraduate Courses (CAS, DAS, MAS/EMBA)
67	Millions (CHF) budget
700	Employees (**180** teachers)
2’000	Students

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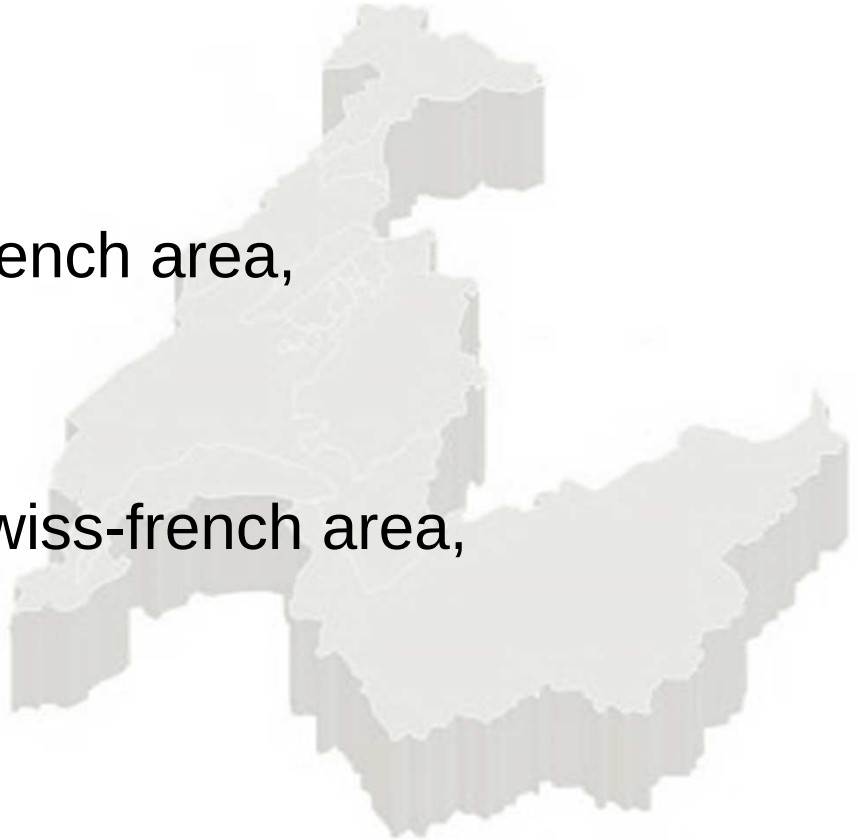
Students

Our students in the swiss-french area

43% engineers, of the swiss-french area,
graduated from the HEIG-VD

19% HES economist, of the swiss-french area,
graduated from the HEIG-VD



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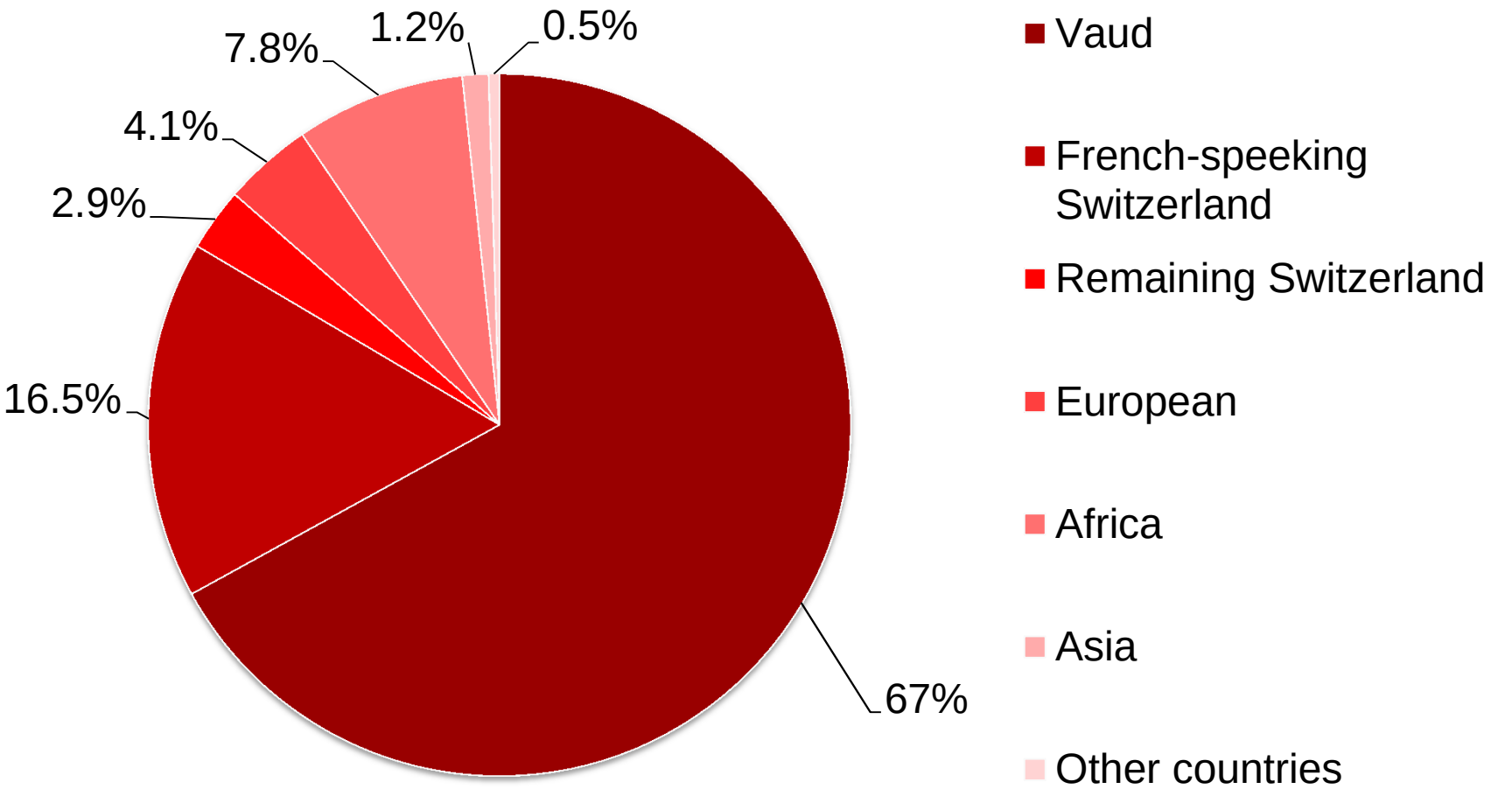
Students

Geographical origin



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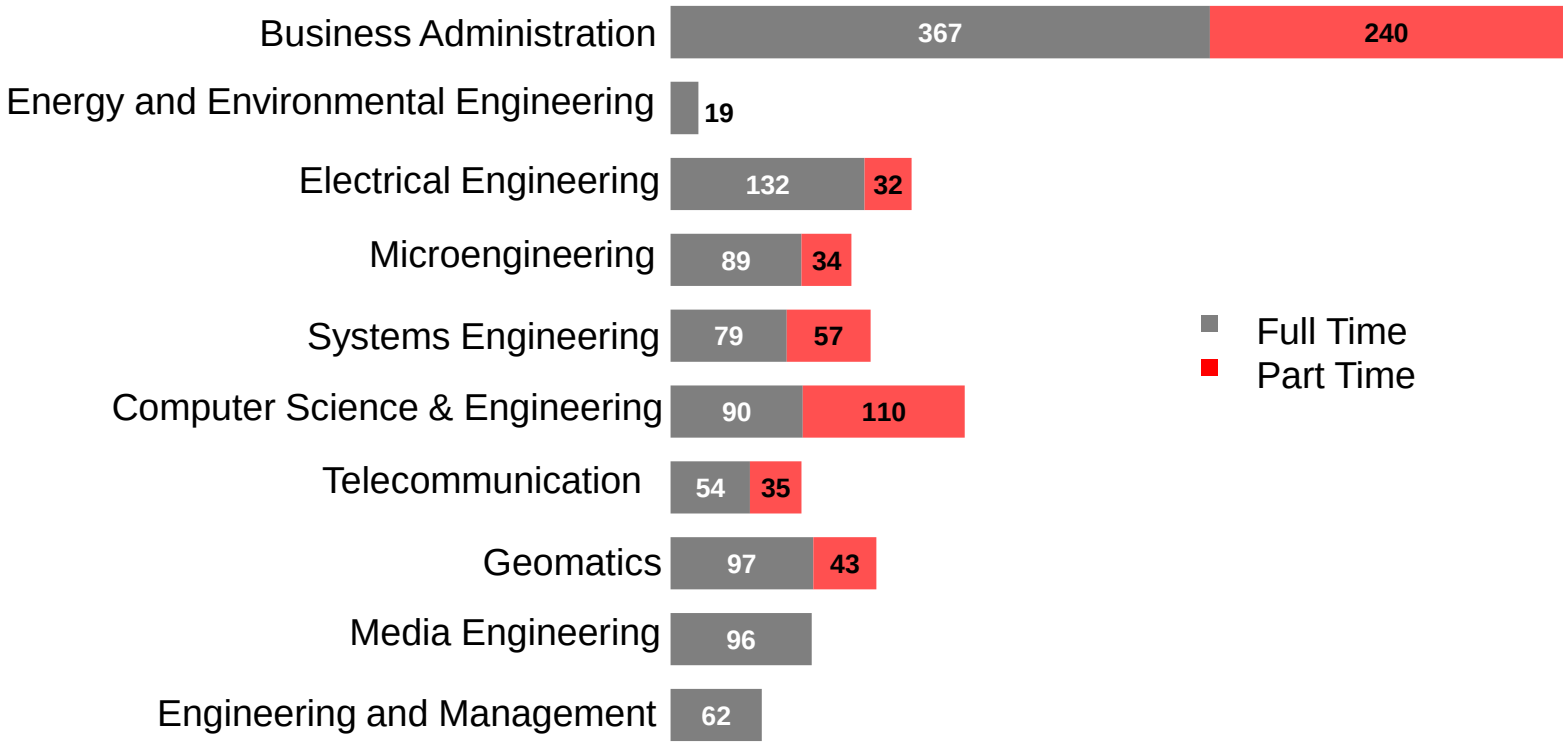
Students

Number of student by BSc Programs



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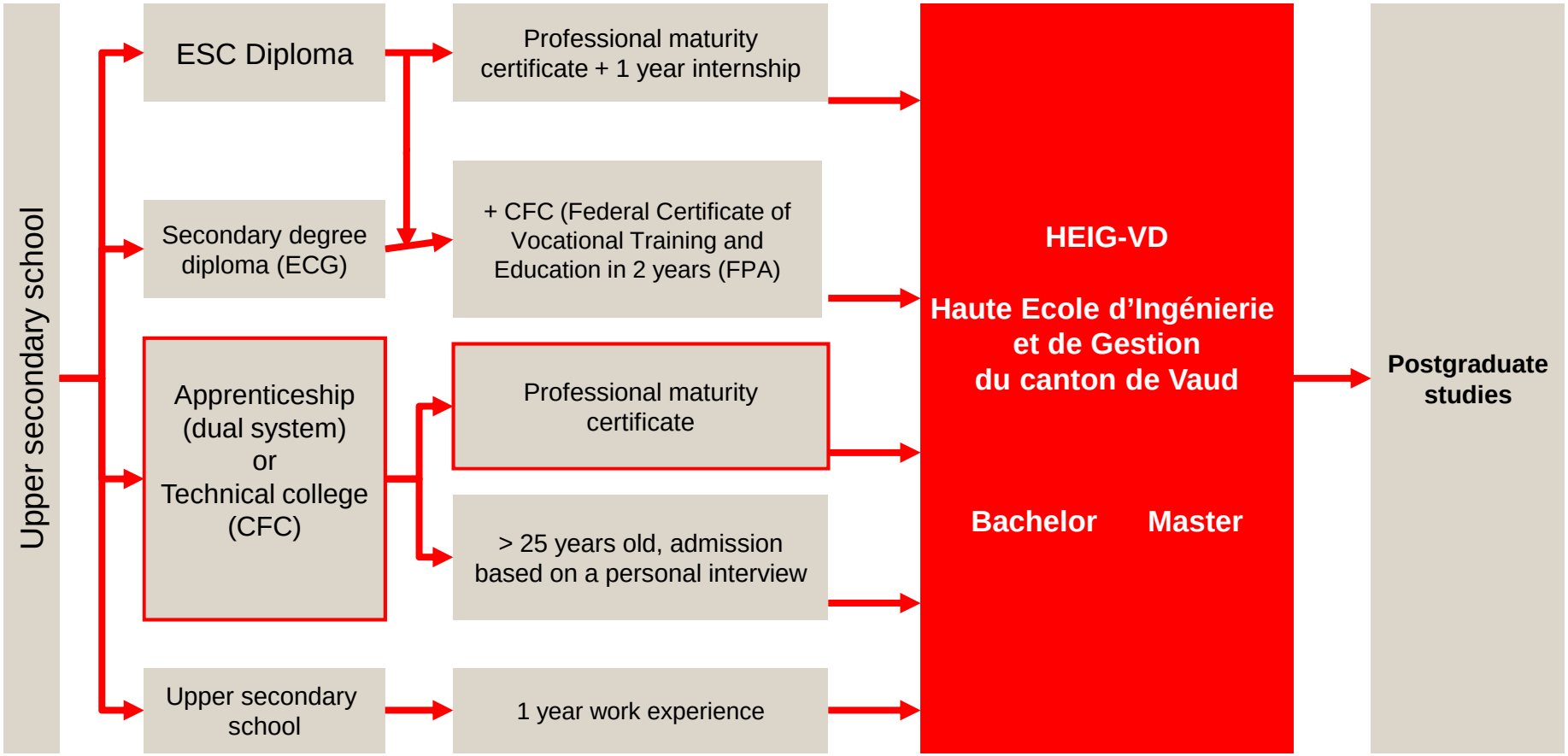
Admission requirements

Engineering



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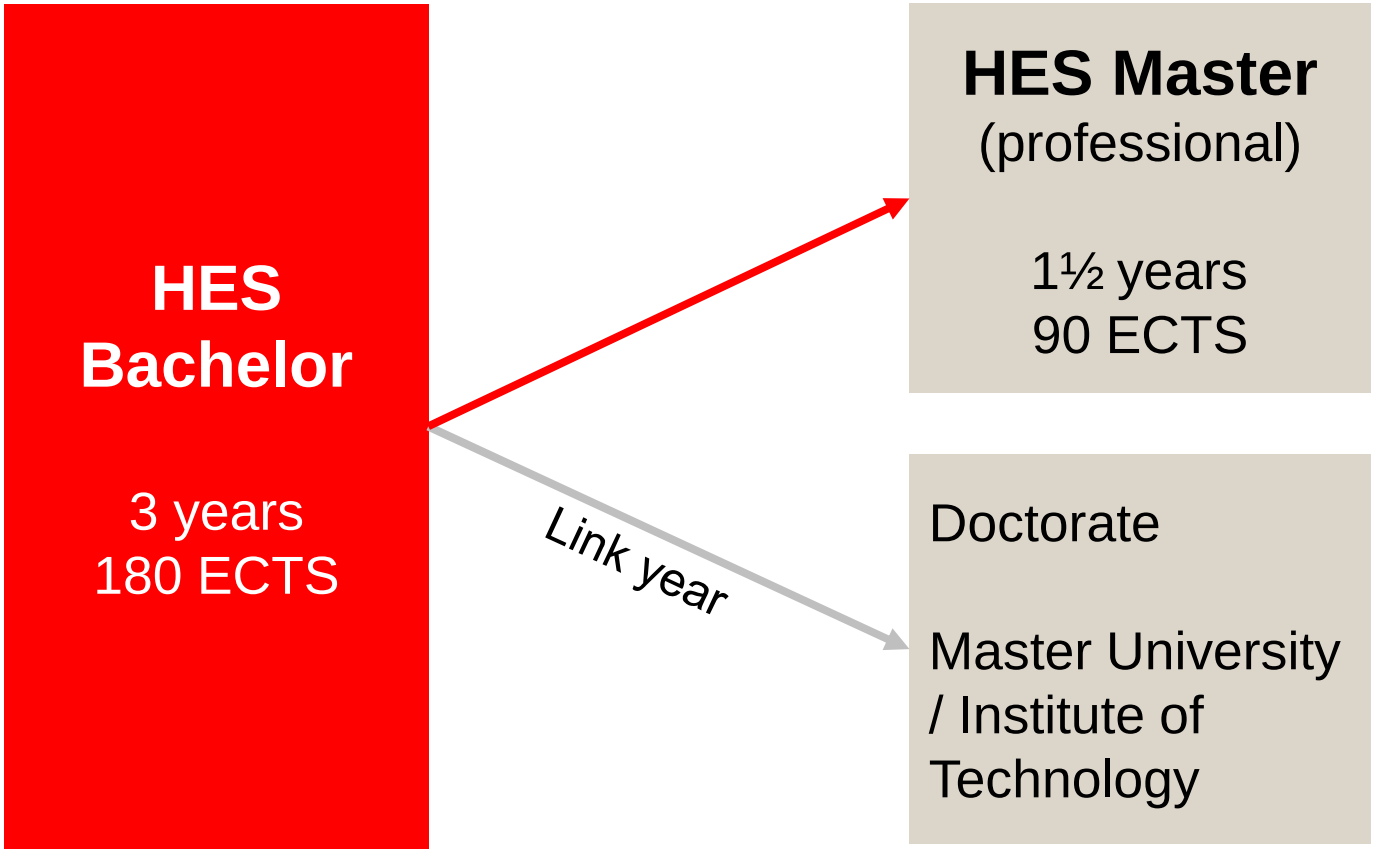
HES Bachelor + Master



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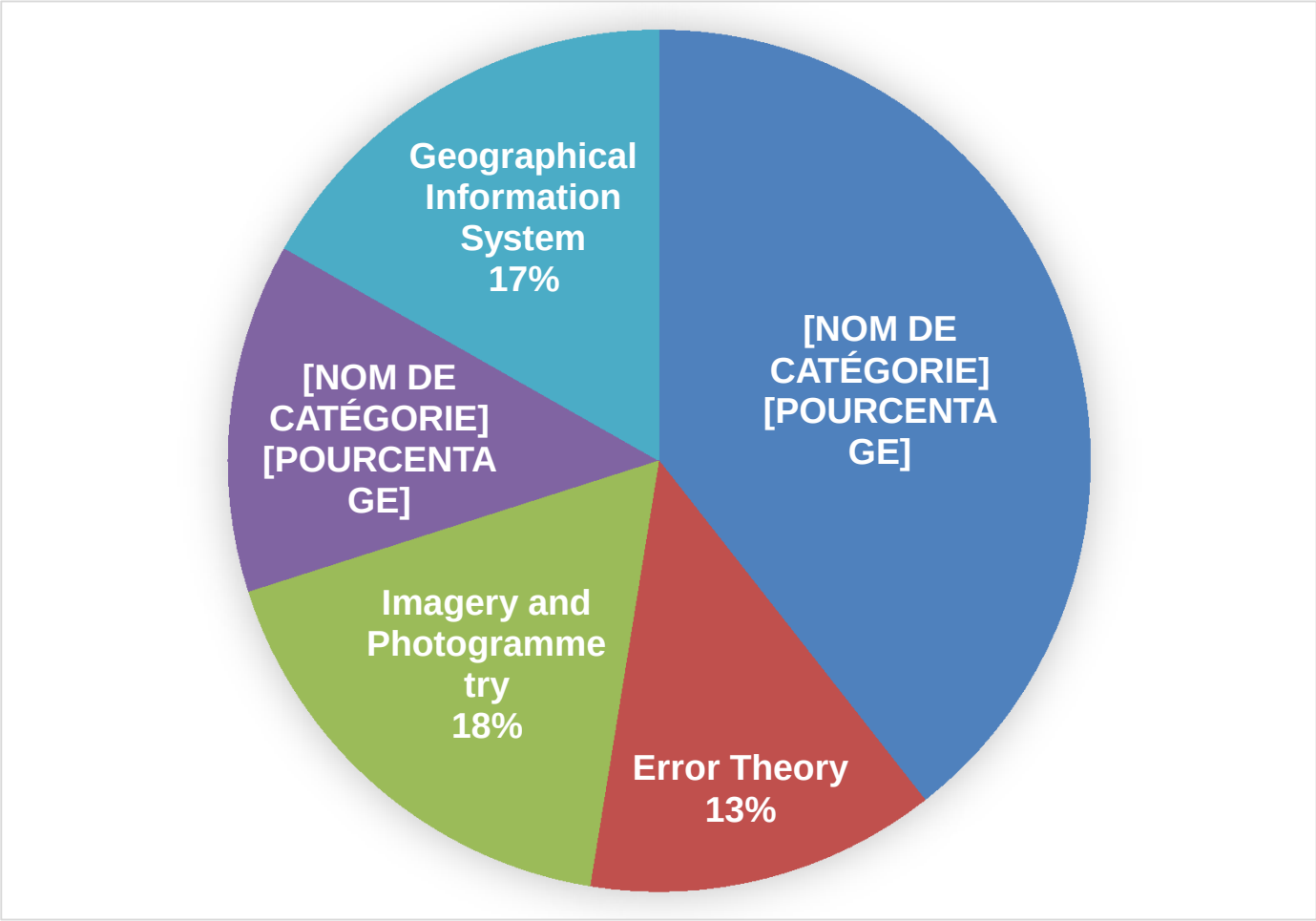
Bachelor Degree

How the disciplines in Geomatics are split



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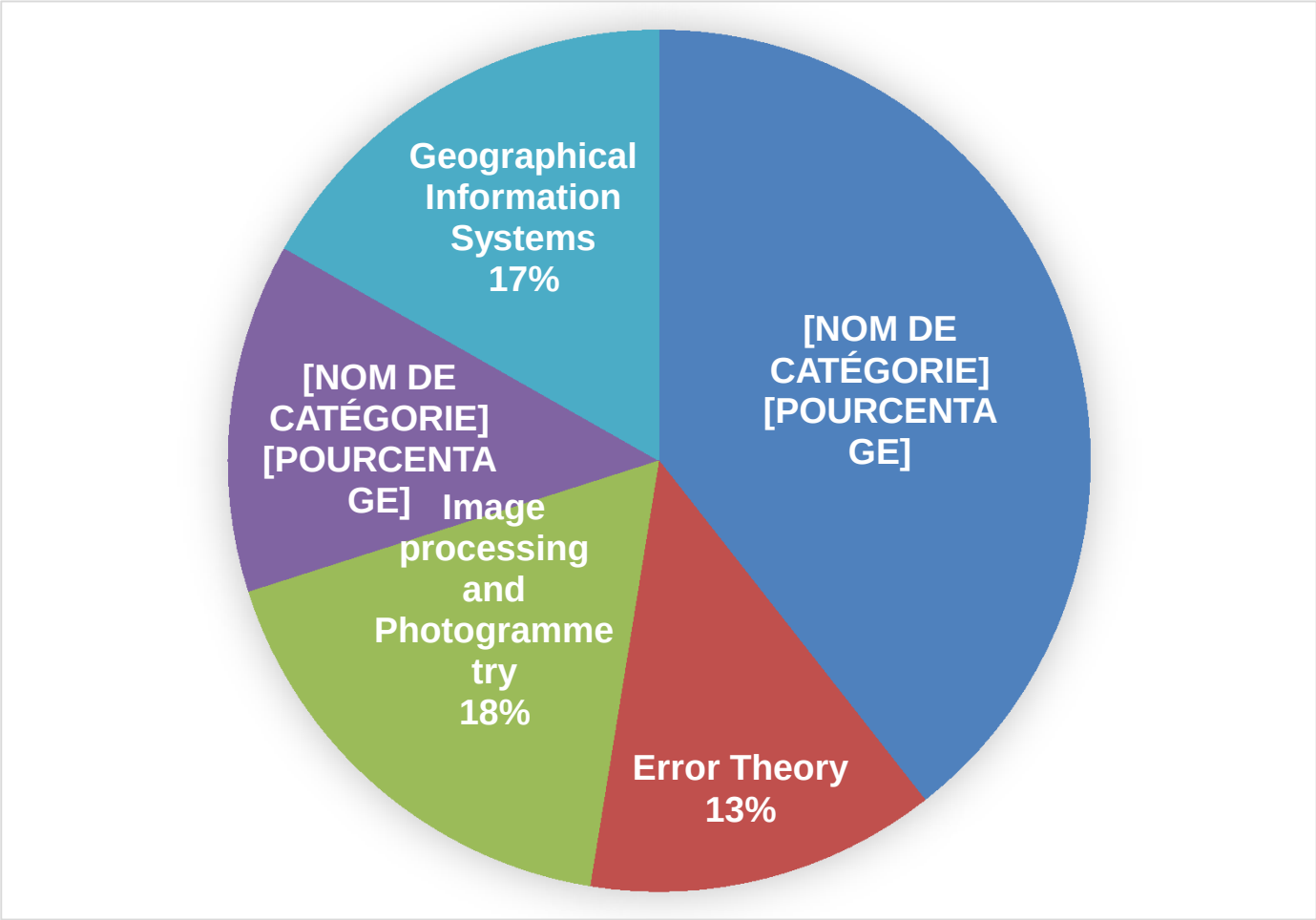
Bachelor Degree



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What should our Students learn ?

How to bring more value ?

Source: Cornell Wilson

Source: Michael Evans

Source: Cornell Wilson

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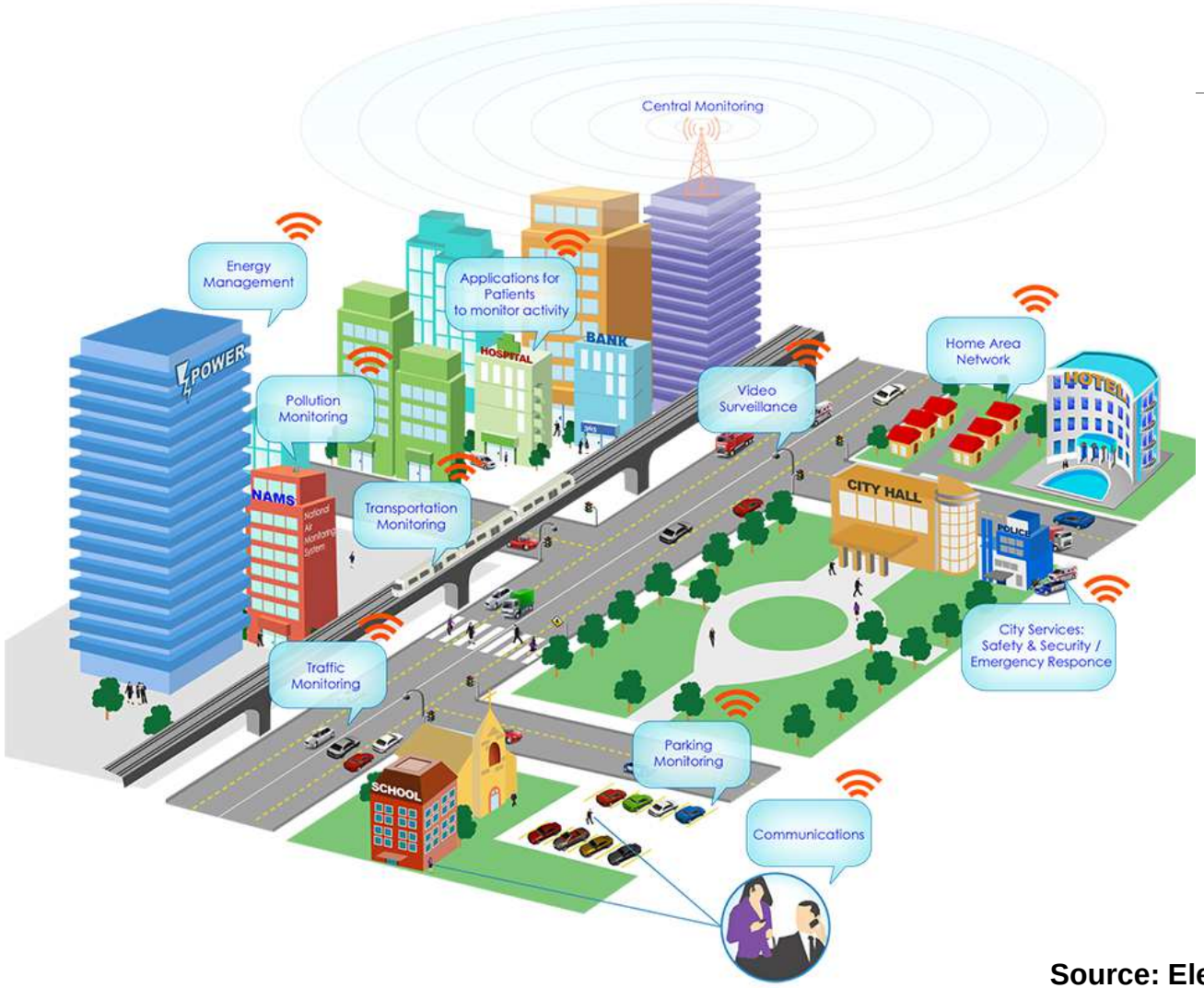

Source: Elets News Network (ENN)

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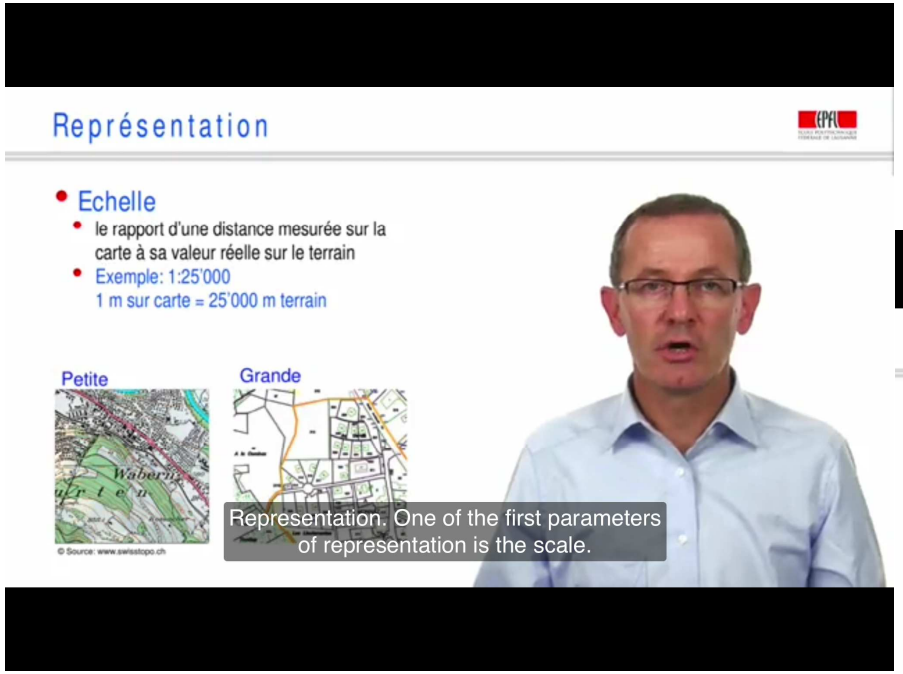
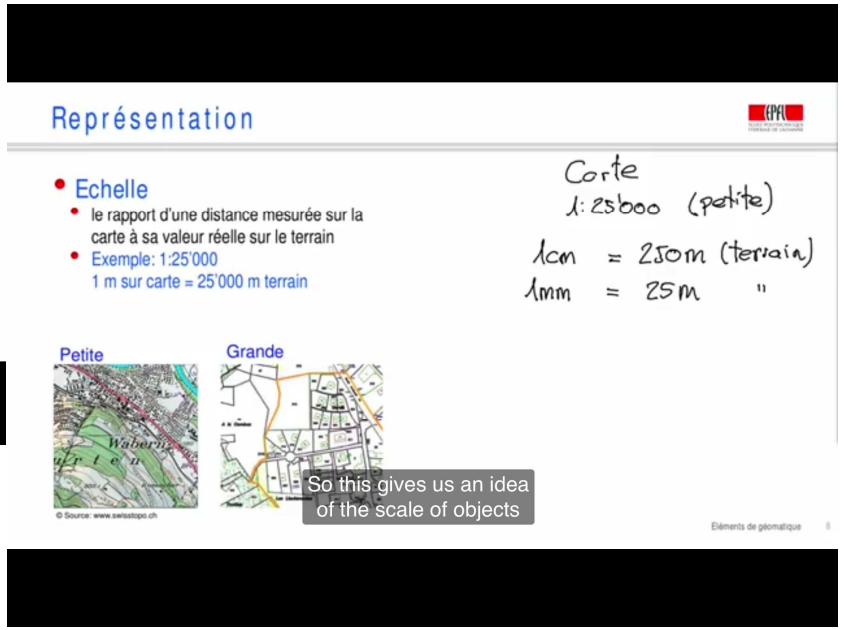
e-learning

Course «Eléments de géomatique» at the EPFL





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Research in Geomatics

BioSentiers: Augmented Reality for Biodiversity

- Participative AR platform
- Goals:
  - Make users aware of urban biodiversity
  - Get users to take action for biodiversity
- Main user group: pupils (12-15 y.o.) visiting the nature reserve Champ Pittet near Yverdon
- Classes use the application while walking from the train station in Yverdon to the nature reserve
- Users can add observations and actions they have taken (e.g. planting a plant on their balcony)

Contact: Jens Ingensand, Sarah Composto, GIS Lab, University of Applied Sciences Western Switzerland, Yverdon-les-Bains, Switzerland
{jens.ingensand, sarah.composto} @heig-vd.ch

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Research in Geomatics

Diachronic Image Correlation

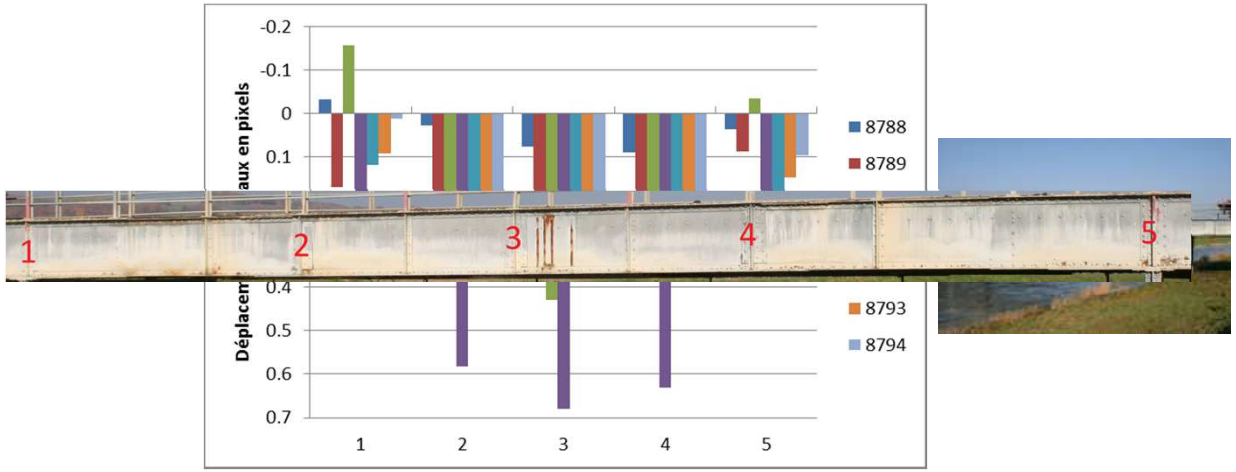
Provides the deformation orthogonal to the optical axis for any object, with an accuracy around 0.01 pixel

Contact: Prof. Michel Kasser, University of Applied Sciences Western Switzerland, Yverdon-les-Bains, Switzerland - michel.kasser@heig-vd.ch

Research in Geomatics

Diachronic Image Correlation

Example on a small bridge : 1 pixel = 1 cm



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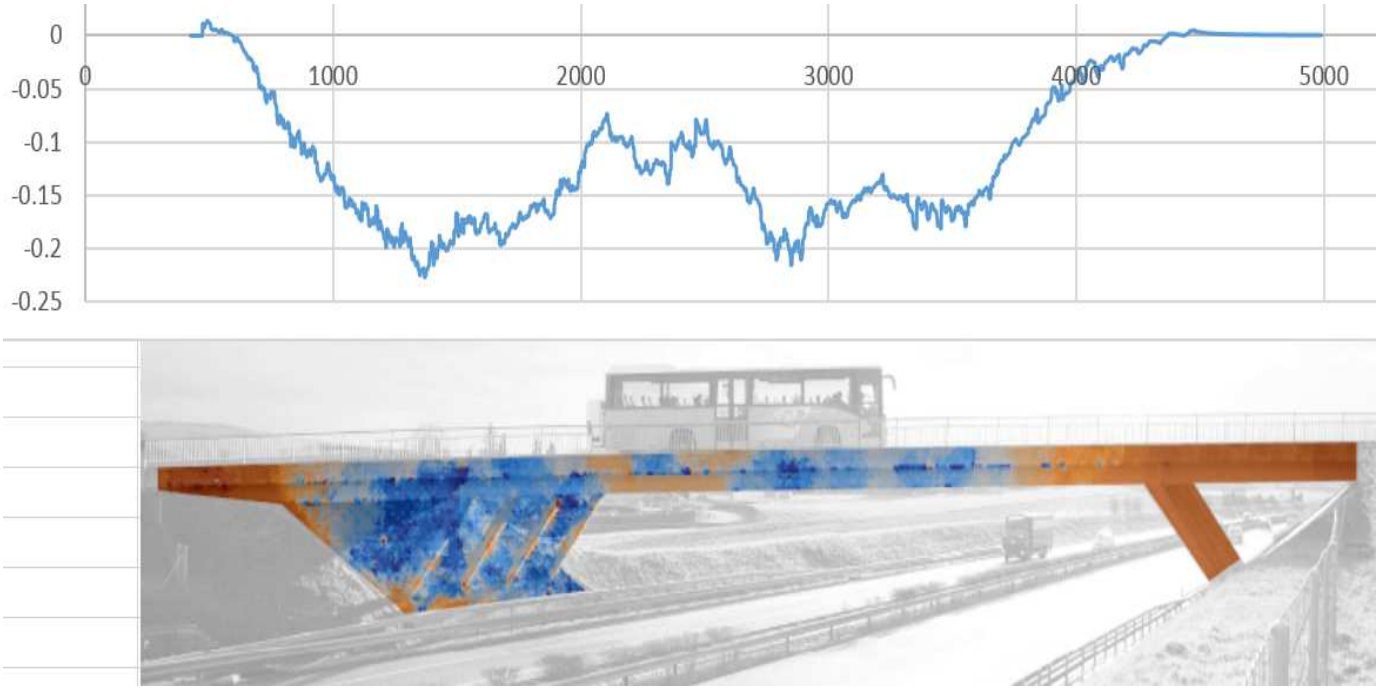
Diachronic Image Correlation

A test on a small highway bridge

January 2015. 1 pixel = 1 cm. Canon EOS5D, f = 50 mm



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Research in Geomatics

Augmented Reality in Cadastral Survey

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Conclusion

- Our students acquire basic knowledge in order to become valuable professionals.

- They have the ability to go further in their carreers and to adapt to the changing world of work.