

Microtechnique



Robotique



Welcome Bachelor & Master students !



Dr. Sebastian Gautsch
Section adjunct



Prof. Francesco Mondada
Director Robotics Master



Prof. Christophe Moser
Section director



Isabelle Schafer
Administration

General info:

<https://www.epfl.ch/education/>

<http://smt.epfl.ch/>

Agenda

13 h 30

Common welcome session for all new students

- Welcome message
- Presentation by the student association DYNAMIC
- The role of student delegates by AGEPOLY

PROGRAM for new Master, exchange & HES Passerelle students:

14 h

« Campus Guided Tour » with Master delegates

15 h

Detailed Info session CE1515

- Microengineering Master curriculum
- Robotics Master curriculum
- Details on orientations

PROGRAM for new Bachelor & ex-CMS students

14 h

Detailed Info session CE1515

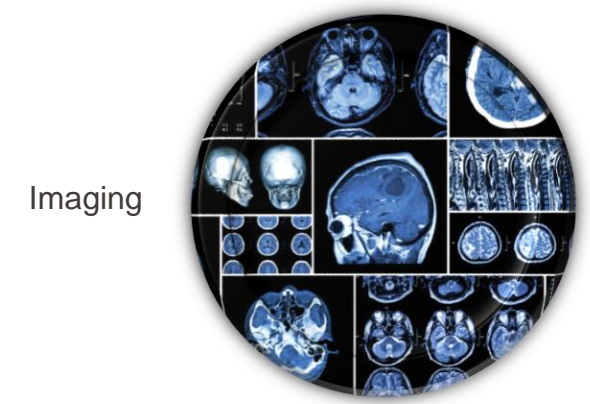
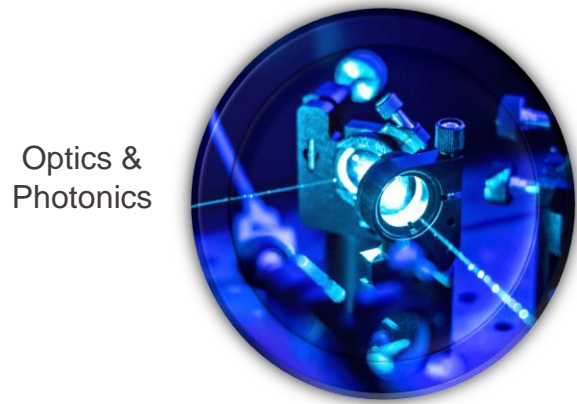
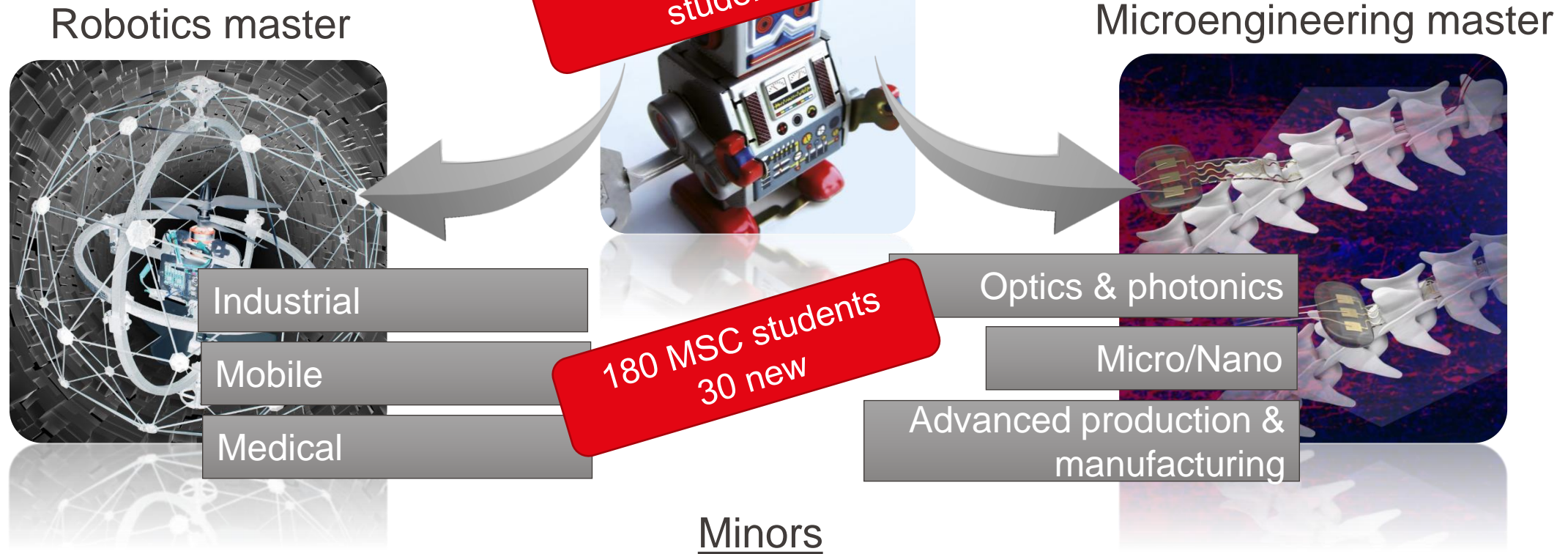
- Study plan and regulations
- MàN
- 3rd year mobility
- How to organise the studies
- Role of study advisors
- Coaching presentations

15 h

« Icebreaker sessions » with coaches

16 h

Q&A and refreshments ! CE 1515



What is Microengineering ?



Microengineering is a branch of engineering that deals with the design and fabrication of very small structures and devices, typically on the scale of micrometers or smaller. It involves the use of microfabrication techniques to create complex systems and machines with dimensions that are often measured in microns.

Microengineering encompasses a wide range of applications, including micro-electronics, micro-electromechanical systems (MEMS), microfluidics, nanotechnology, and bioengineering. Some examples of microengineering products include microsensors, micro-actuators, micro-optics, microfluidic chips, and microelectronic devices.

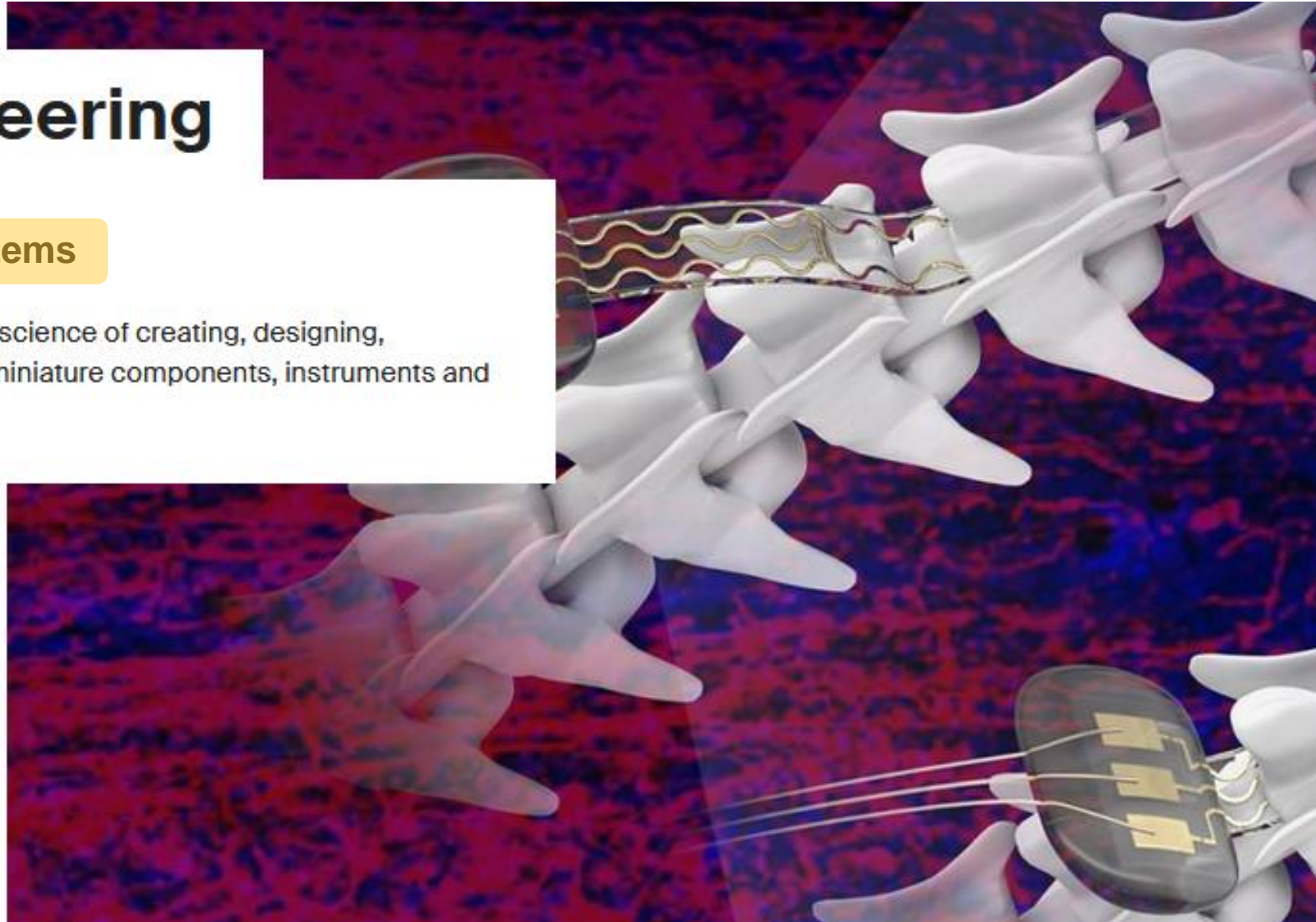
Microengineering plays an increasingly important role in many fields, including medicine, electronics, materials science, and environmental monitoring. By creating devices that are small, efficient, and precise, microengineering is enabling new applications and advancing scientific understanding in a variety of areas.

What is Microengineering ?

Microengineering

Engineering Small systems

Microengineering is the art and science of creating, designing, integrating and manufacturing miniature components, instruments and products.



Watch Valley: Birthplace of Swiss Watchmaking



History of Microengineering

The Jaquet-Droz Automata
(*La Chaux-de-Fonds* - 1768 and 1774)



«The earliest ancestors of Modern Robotics»

*Le dessinateur
(2000 pieces)*



History of Microengineering

2009 – Spiral made of Silicon

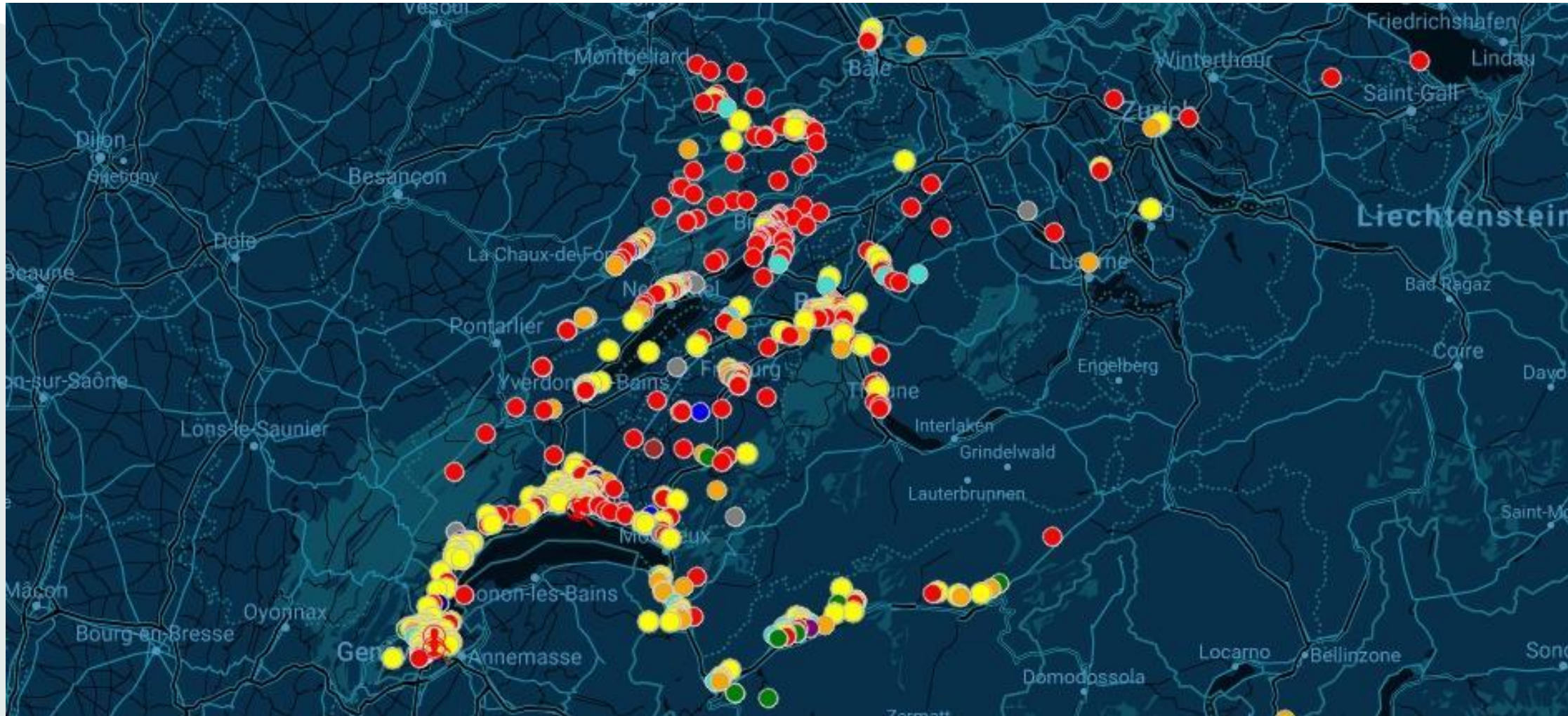
Institut de Microtechnique, Patek-Philippe, *Neuchâtel*



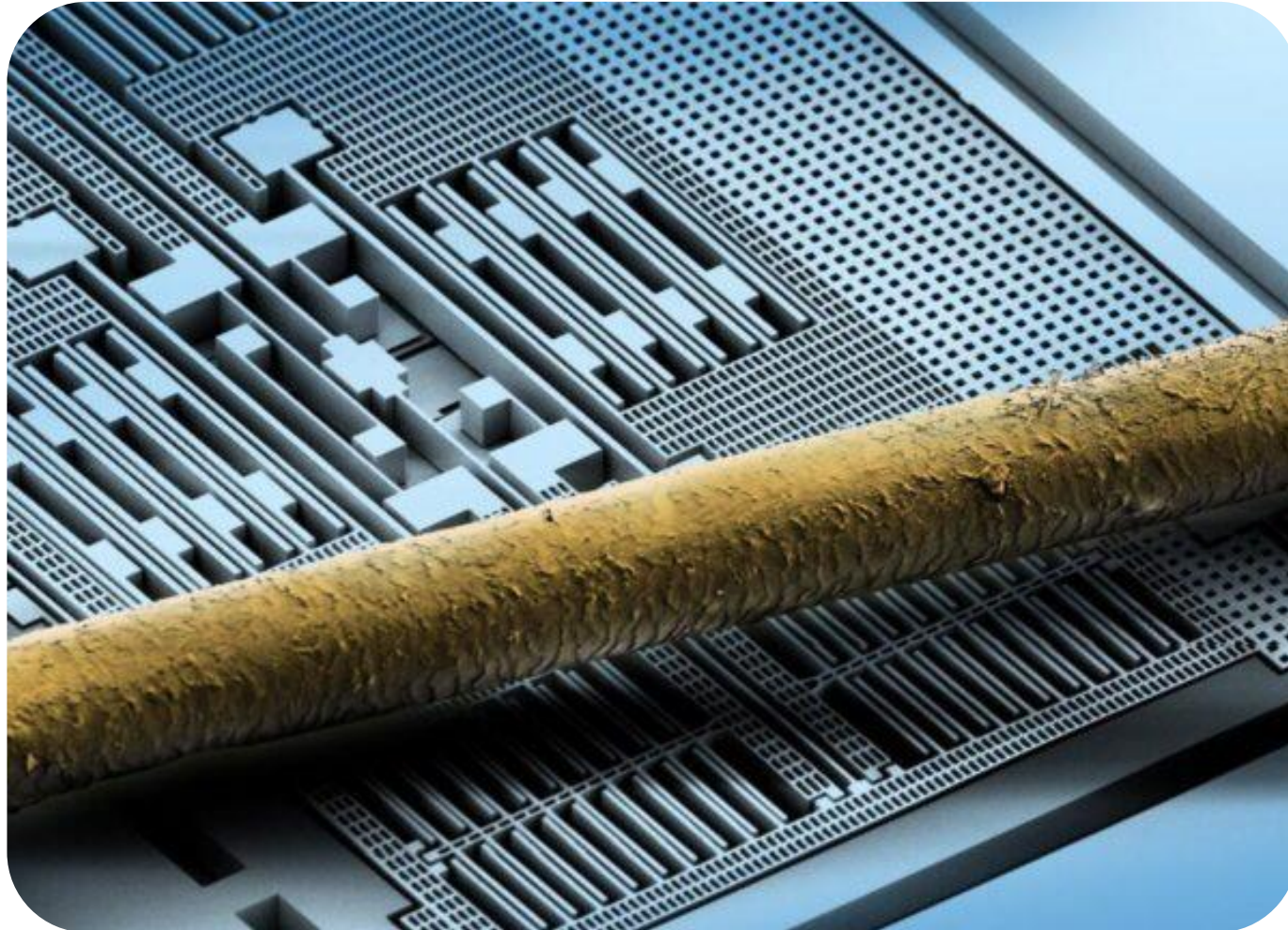
PATEK PHILIPPE
GENEVE

Building on History - The Health Valley

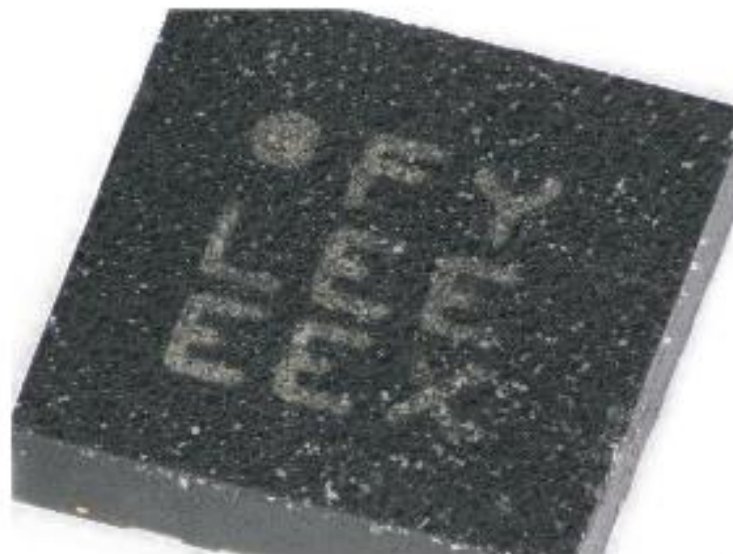
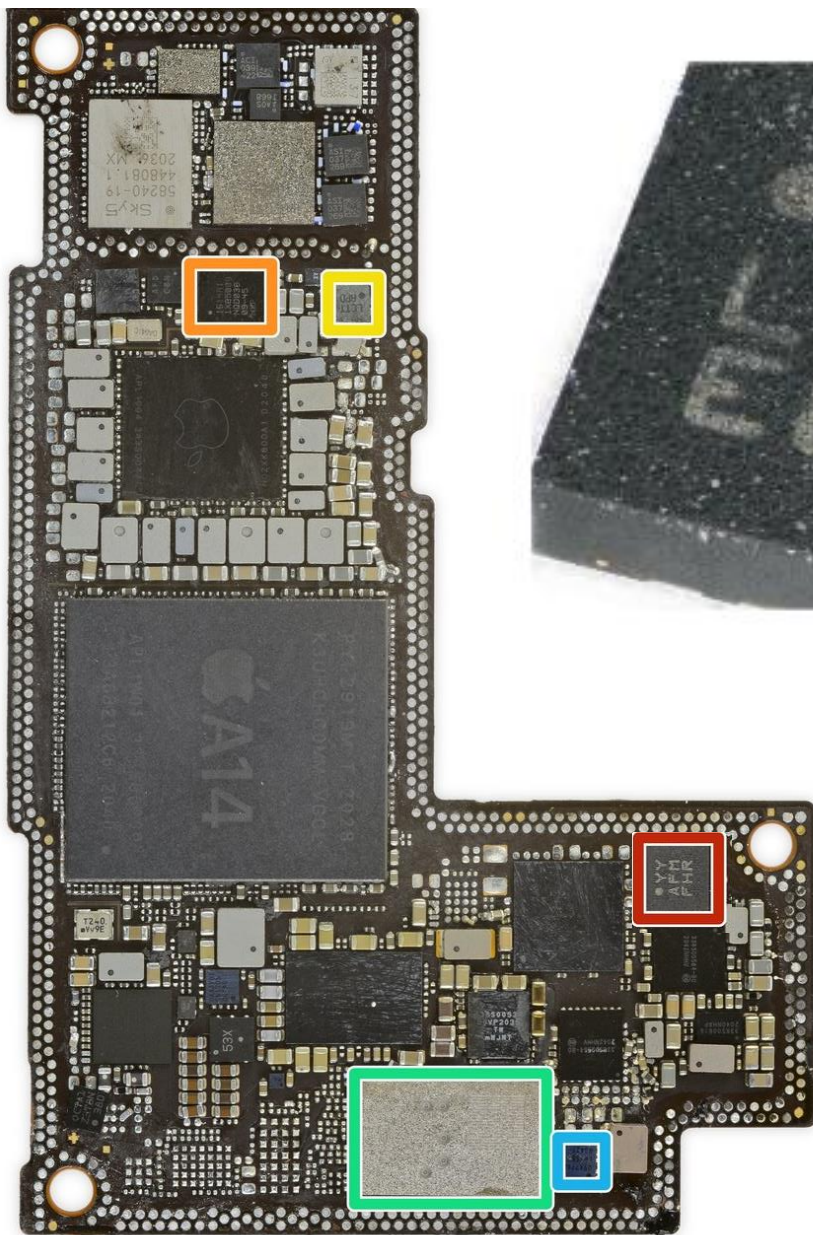
“Western Switzerland’s Health Valley is home to 39 research and academic institutions, **1’020 companies**, 62 private and public innovation support programs and over 5’000 life sciences students”



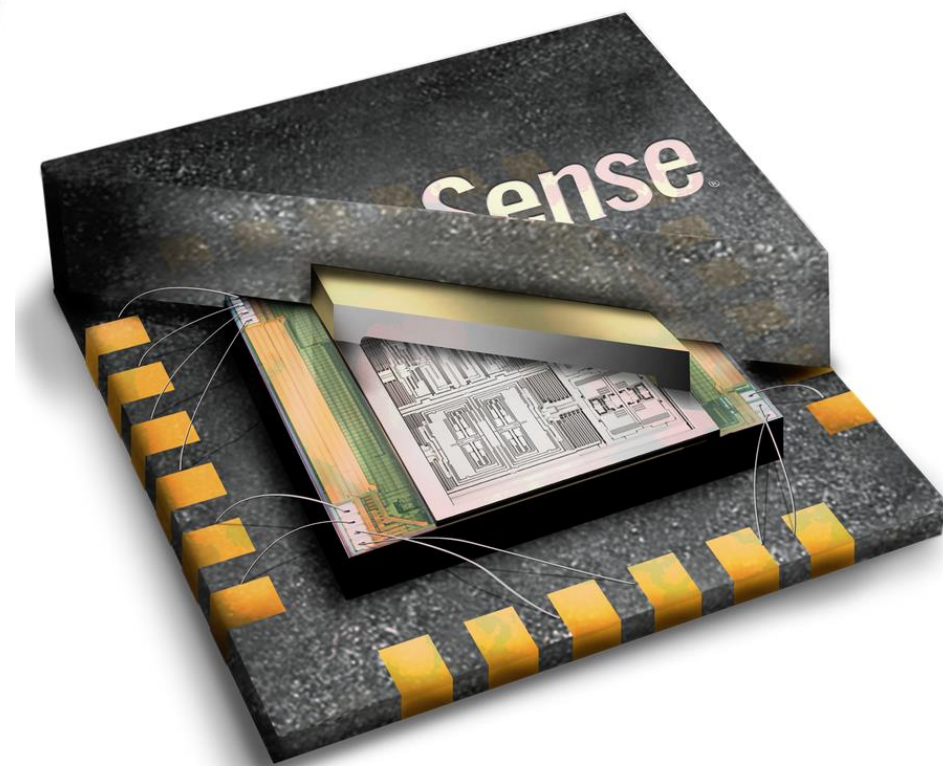
Microsystems



Microsystems and Motion Sensors



- Accelerometers: X, Y, Z
- Gyroscope: Roll, Pitch, Yaw
- Magnetometer: X, Y, Z
- GPS



Why go Small ???

Size and Mass



IMU on Saturn V (1960)

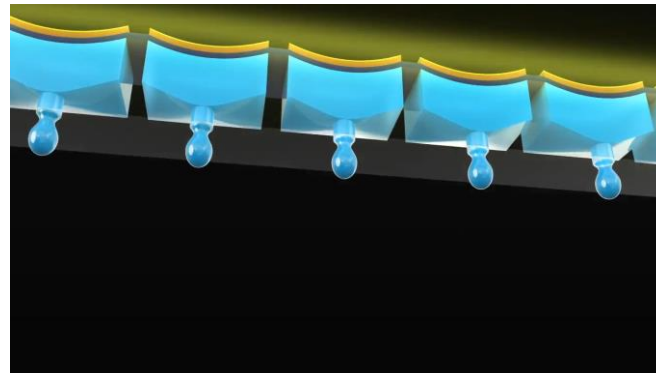


IMU from Xsens (2019)

Speed



40'000 droplets per second

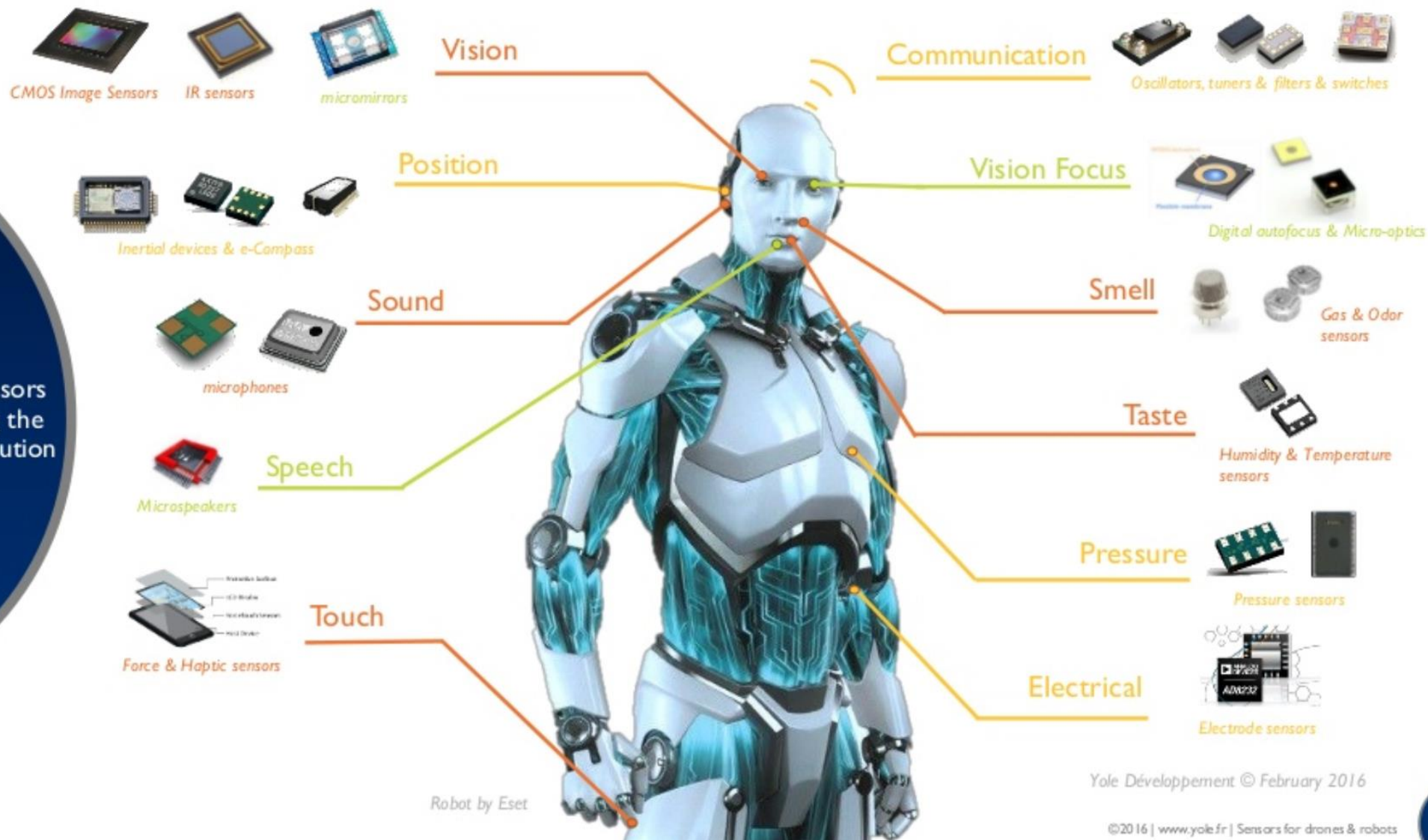


Energy consumption



Robotics and Sensing

Mems & sensors are enabling the robotic revolution



Robot by Eset

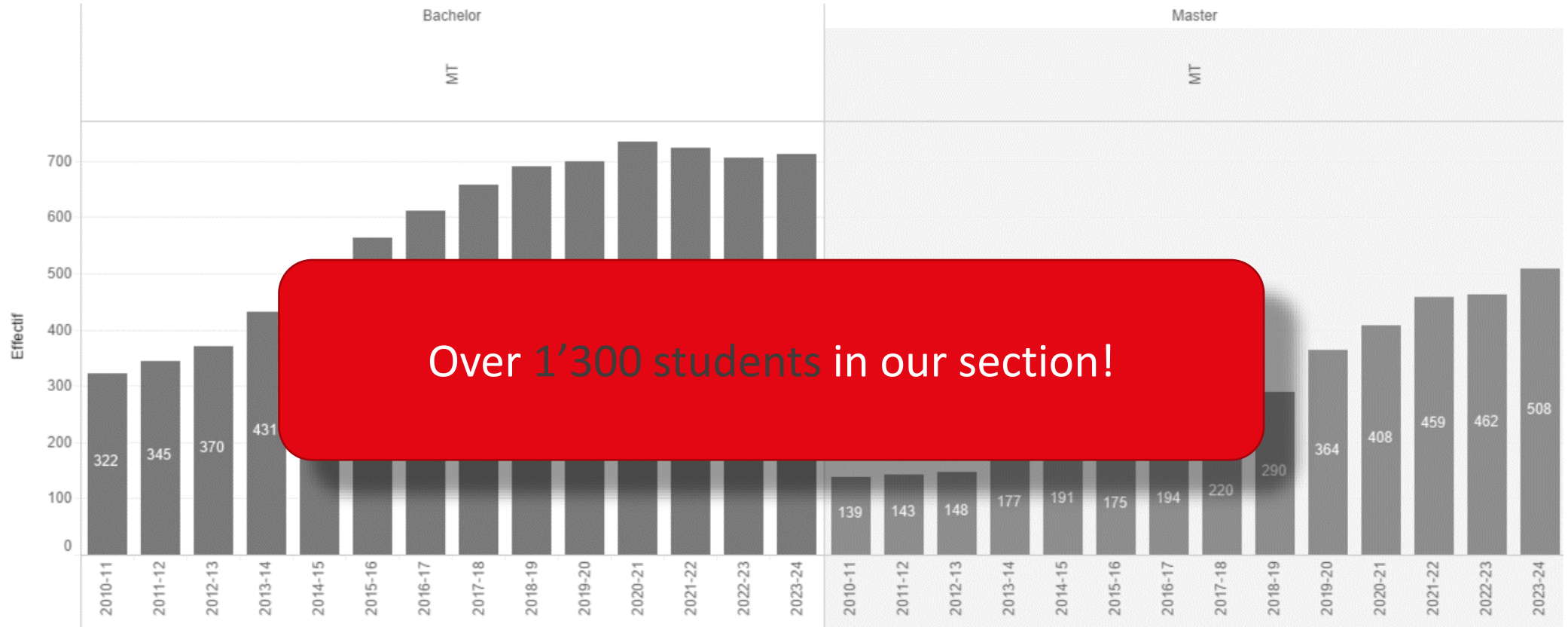
Machine Learning, Artificial Intelligence

Mind controlled Robots





Very successful curricula



Worldwide recognition of our programs



28. Federal Institute of Technology Lausanne
+ Switzerland | Lausanne

For Engineering
#4 in Europe
#1 in Switzerland

Enrollment 12,576

8. Federal Institute of Technology Lausanne
+ Switzerland | Lausanne

For Robotics
#1 in Europe
#1 in Switzerland

14. Federal Institute of Technology Lausanne
+ Switzerland | Lausanne

For Nanotechnology
#2 in Europe
#1 in Switzerland

Enrollment 12,576

8. Federal Institute of Technology Lausanne
+ Switzerland | Lausanne

For Electrical Engineering
#1 in Europe
#1 in Switzerland

20. Federal Institute of Technology Lausanne
+ Switzerland | Lausanne

For Materials Science
#3 in Europe
#1 in Switzerland

23. Federal Institute of Technology Lausanne
+ Switzerland | Lausanne

For Optical Engineering
#4 in Europe
#1 in Switzerland

Tuition fees MIT / year



EXPENSE	COST	DESCRIPTION
Tuition	\$59,750	MIT subsidizes the total cost of tuition for every student. (It actually costs more than double this amount to provide our cutting-edge research facilities and faculty!) Tuition covers basic health insurance ⁰² and will give you urgent care, mental health visits, and specialist care at no extra cost.
Student life fee	\$406	This helps to support student clubs, organizations, and the sports and fitness center. It also covers unlimited access to the gym, fitness classes, student organization events, and trips.
Housing	\$12,380	All first-year students are required to live on campus. While our residence halls and living groups vary in cost, we calculate financial aid based upon the most expensive double room (\$12,380). We'll bill you in July for \$6,190 (one semester of the most expensive room), then adjust it based on your actual housing cost in September. Your financial aid allowance will stay the same regardless of your actual expenses.
Food	\$7,010	There are multiple dining plan options, including cooking for yourself, but for the purposes of determining your financial aid eligibility, we budget \$7,010 per year for meals. This covers the most expensive meal plan. The amount won't change regardless of your actual expenses.
Books, course materials, supplies & equipment	\$880	MIT estimates \$880 for these out-of-pocket expenses, regardless of how much you spend.
Personal expenses	\$2,304	MIT estimates this amount to cover expenses such as clothes, laundry, and other bills. We use this amount regardless of how much you spend.
Total	\$82,730	Remember, this is the price, before <u>any aid</u> .

<https://sfs.mit.edu/undergraduate-students/the-cost-of-attendance/annual-student-budget/>

Our student Association «Dynamic»

Welcome to MT !





**We are
Dynamic**

We are here FOR YOU!



▪ Events :

- Parties
- Conferences



▪ Representation

▪ Listening

▪ Organizing the end of bachelor travel



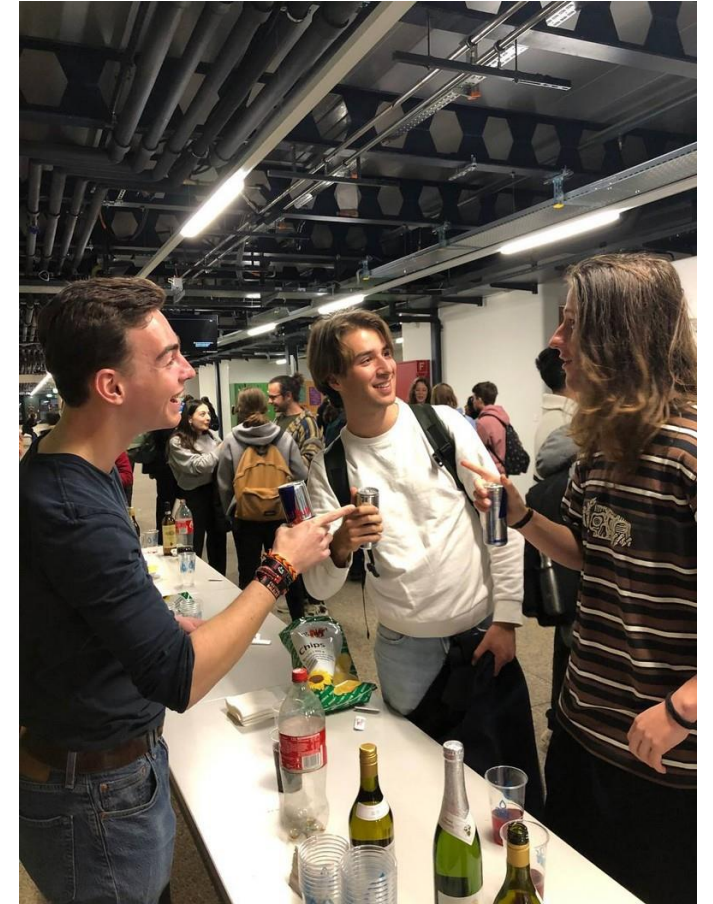
Section dinner



Parties



Conferences



Our Committee



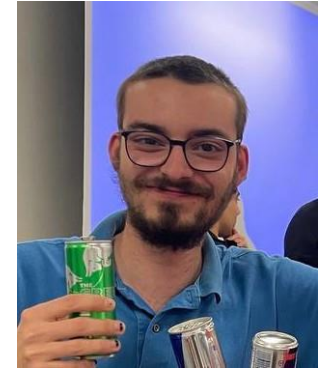
Mathieu
President



Hugo
Animation
VP



Maxime
Sponsoring
VP



Seb
General
Secretary



Leo
Treasury



Jean Marc
Networking



Alexandre
Bachelor
Travel



Follow us on our social media!



@dynamic_epfl



Become a student delegate



Welcome to EPFL!



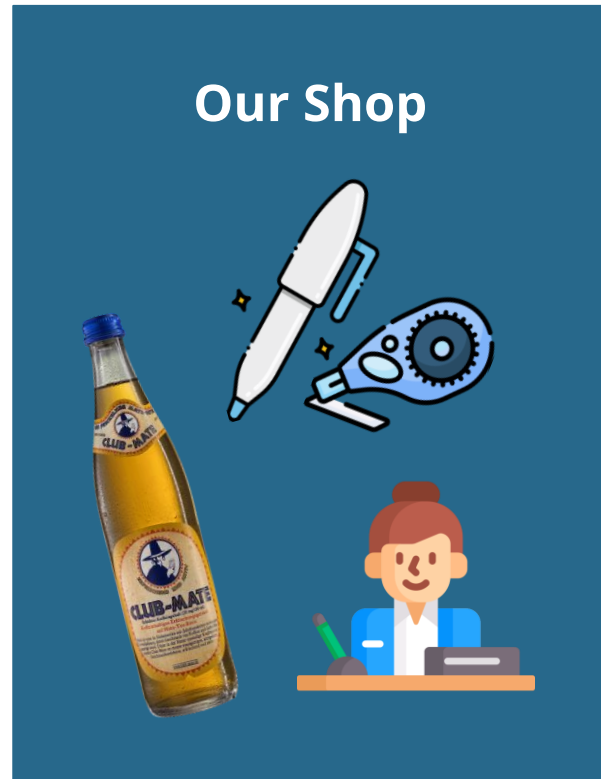
The Student's General Association

Association Générale des Étudiant·e·s de l'EPFL



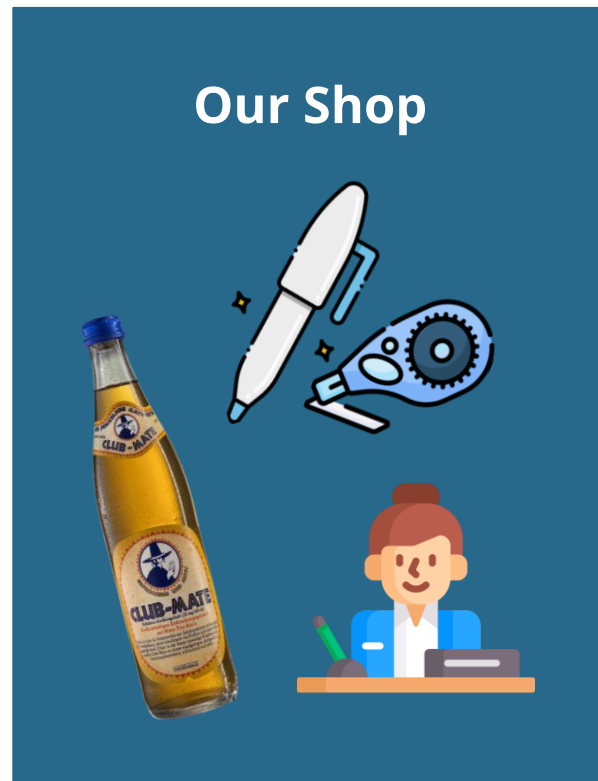
Recap on AGEPoly

What links you to AGEPoly



Recap on AGEPoly


What links you to AGEPoly




Recap on AGEPoly

What links you to AGEPoly

Our Shop



Your Camipro



École polytechnique fédérale de Lausanne

L'Éponge

Bob

SCIPER 313569

Etudiant

Valable jusqu'au 21.02.2021

Membre AGEPoly

Carte n° 02636940

URGENCES +41 21 693 30 00

swissuniversities

As off now you are an AGEPoly member

Wonderful people

2 class representatives



AGEPoly's Structure



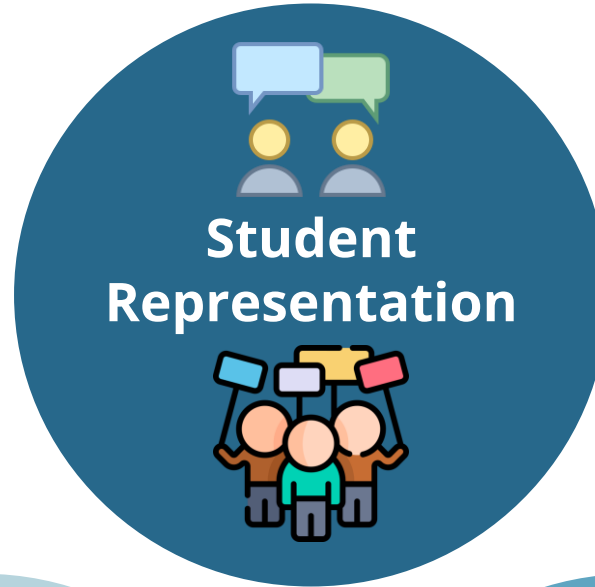
AGEPoly's Structure



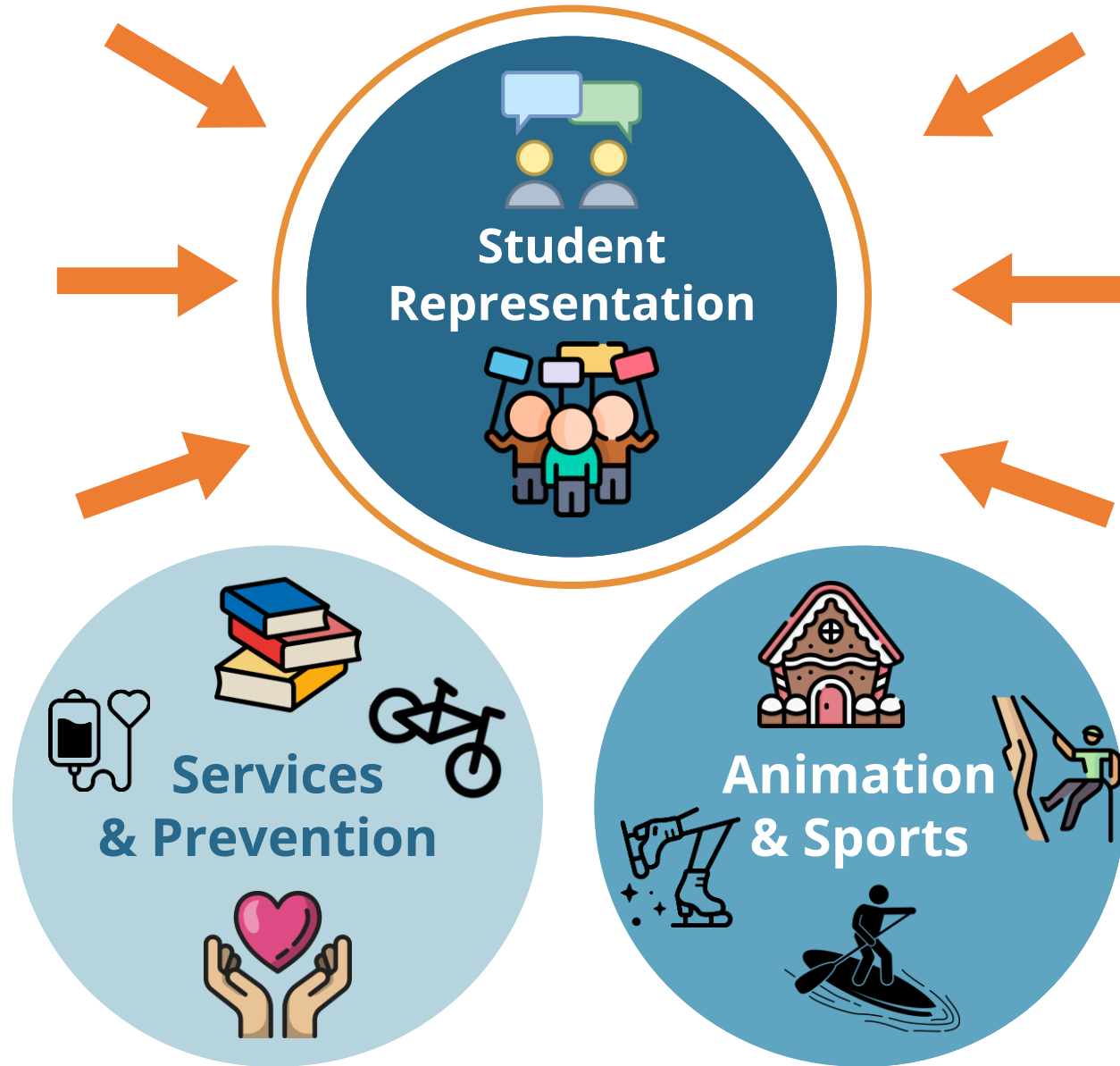
AGEPoly's Structure



AGEPoly's Structure

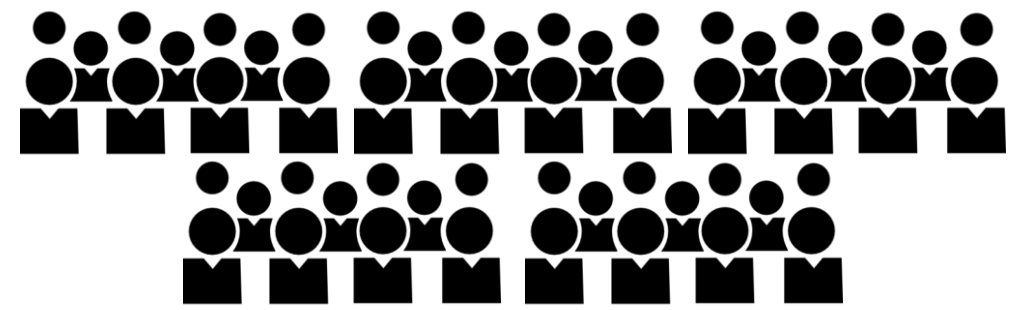


AGEPoly's Structure

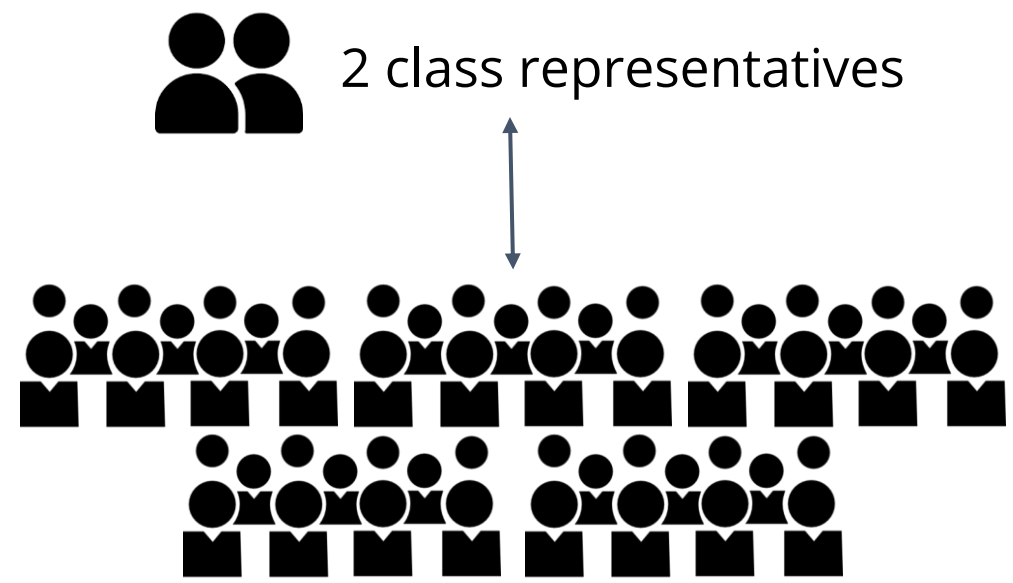


What is a class representative ?

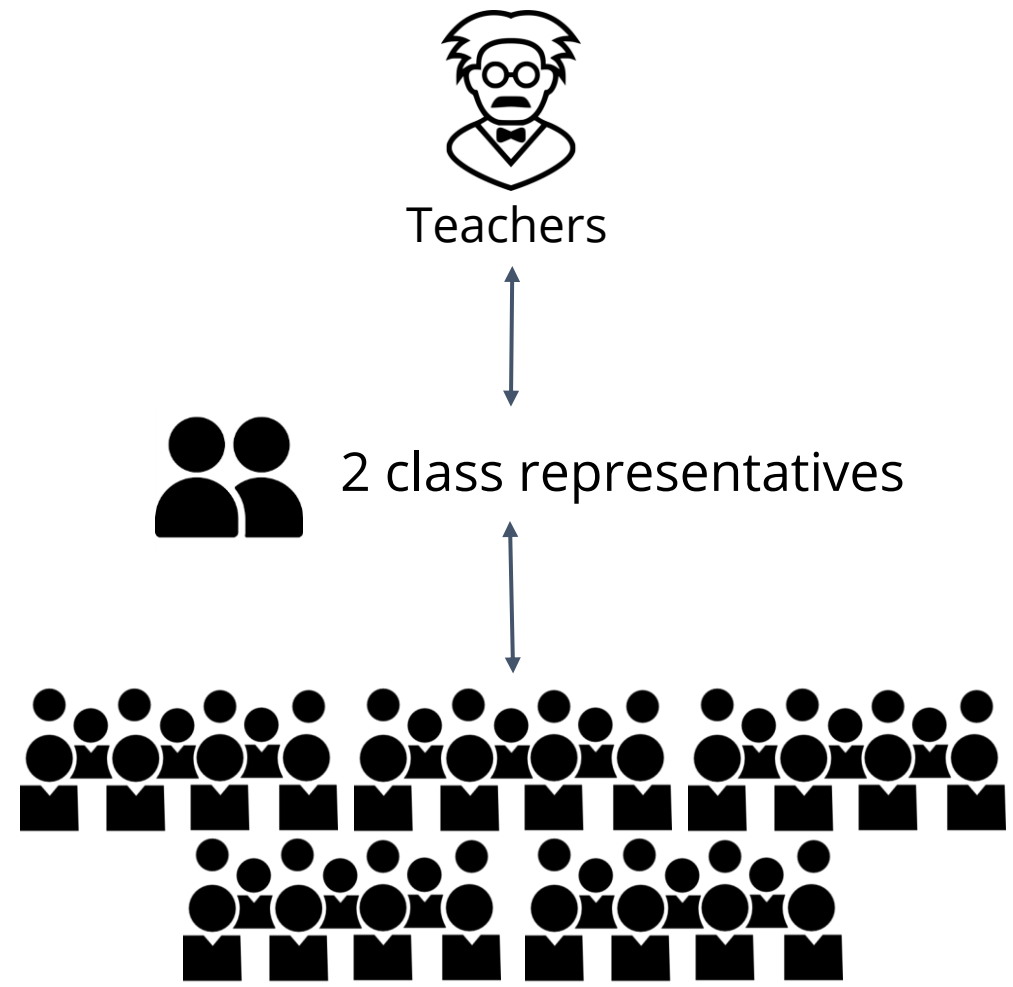
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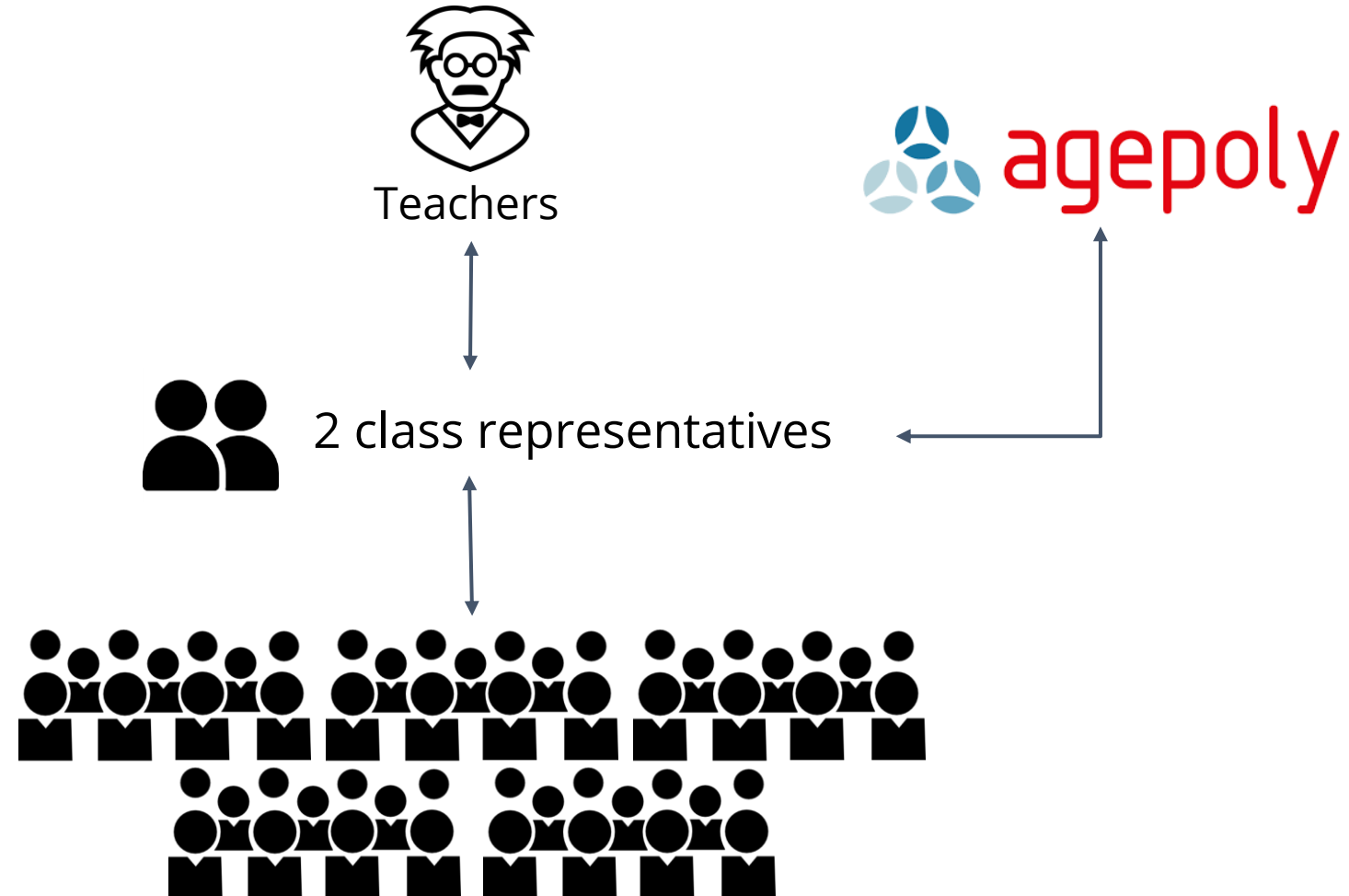
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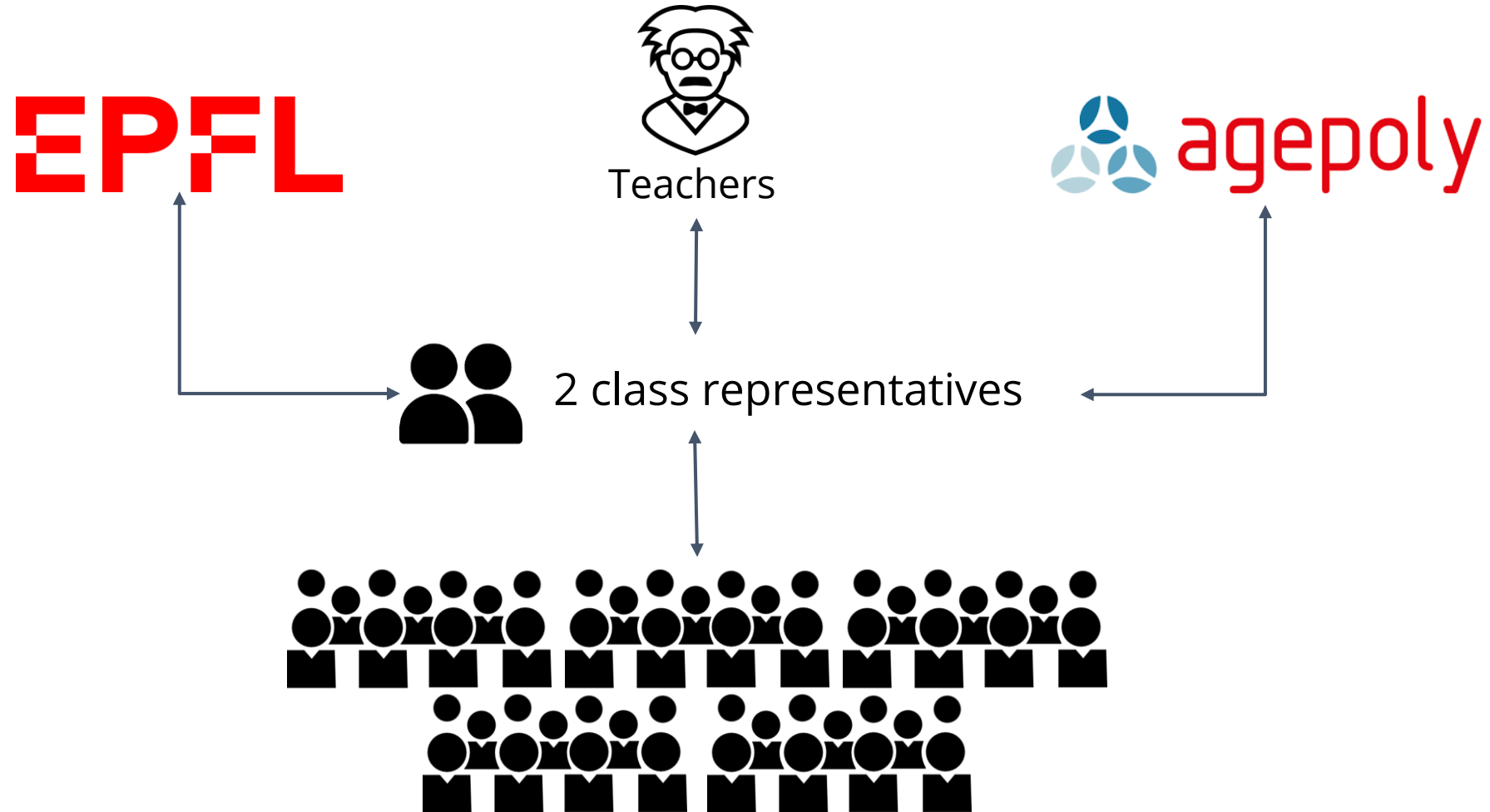
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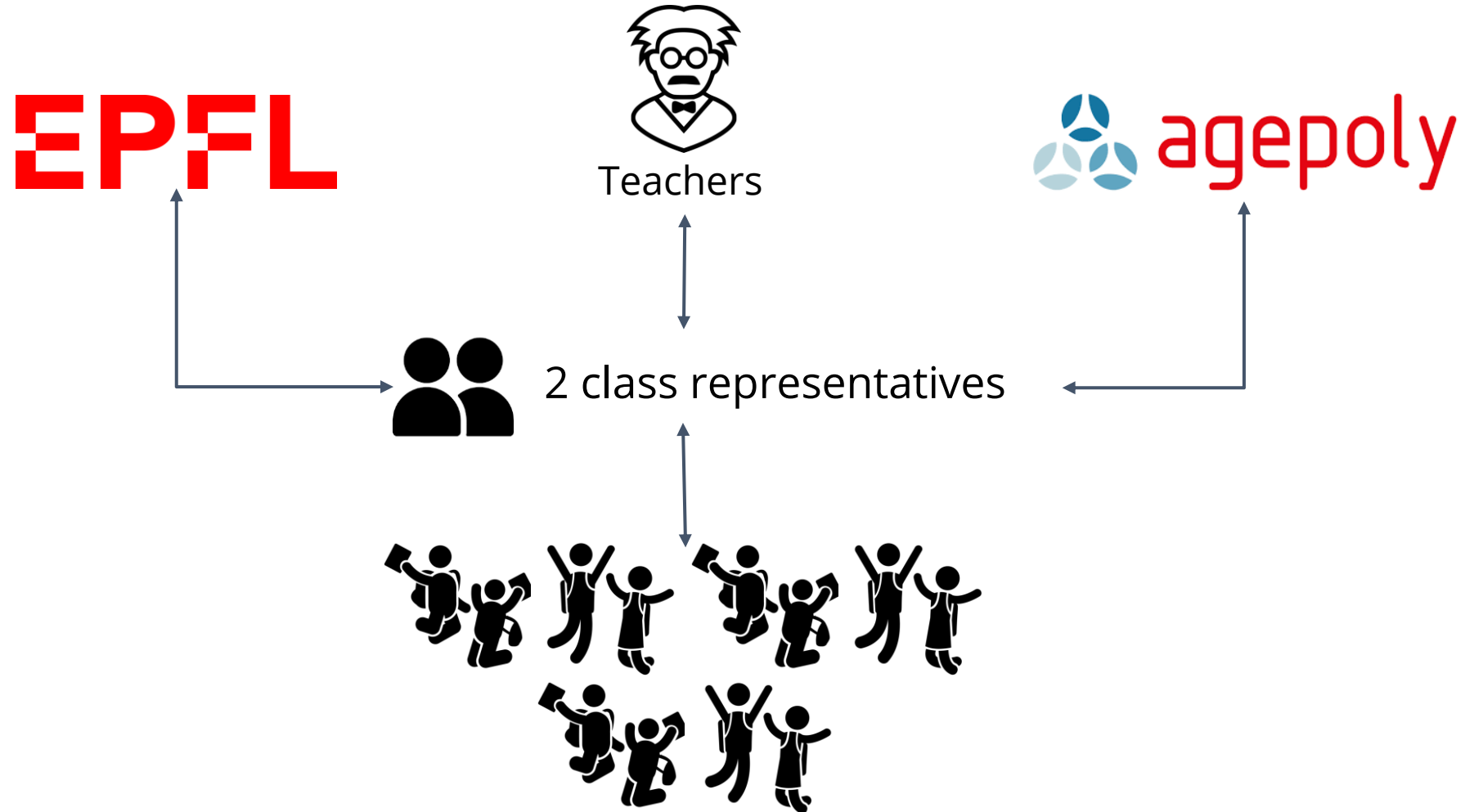
What is a class representative ?



What is a class representative ?



What is a class representative ?



Why do we need class representatives ?


A large, solid dark blue circle containing the text "Big classes !".

Big classes !

Why do we need class representatives ?

A dark blue circle containing the text "Big classes !".

Big classes !

A light blue circle containing the text "The teachers want your opinion on their lectures".

**The teachers want your
opinion on their
lectures**

Why do we need class representatives ?

Big classes !

**Little problems
with courses**

**The teachers want your
opinion on their
lectures**

Why do we need class representatives?

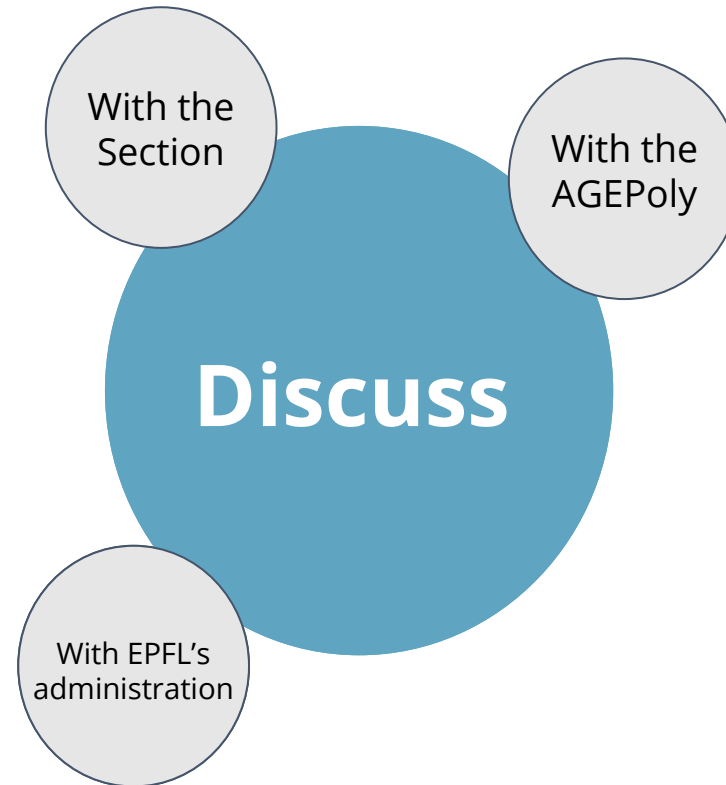
Big classes !

Little problems
with courses

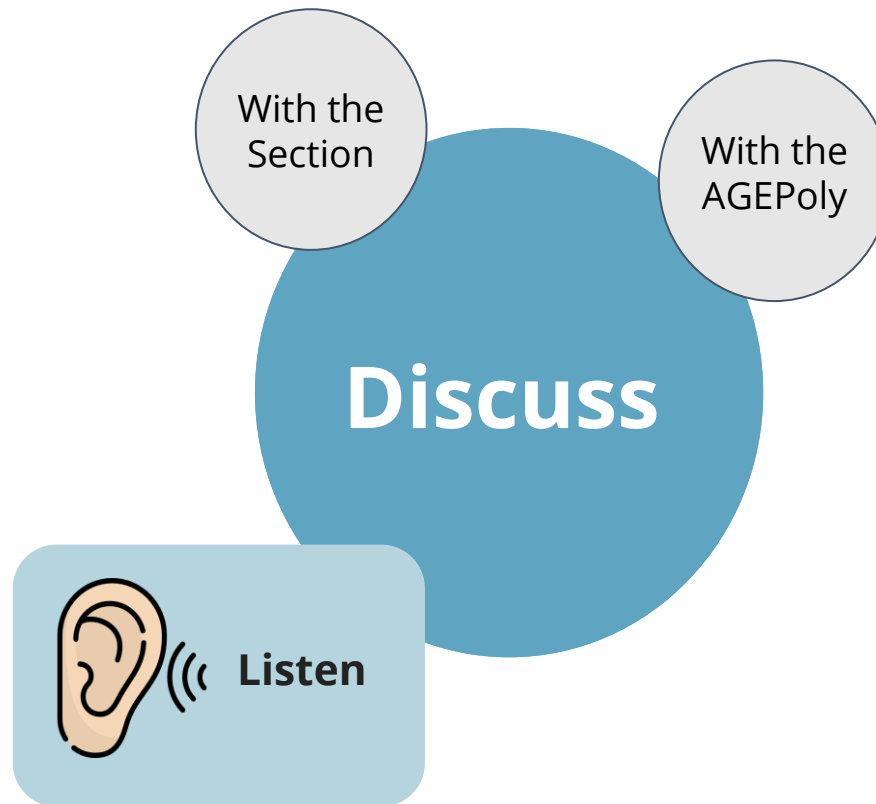
The teachers want your
opinion on their
lectures

**Represent and
defend the
students' rights
and interests**

What do class representatives do ?



What do class representatives do ?



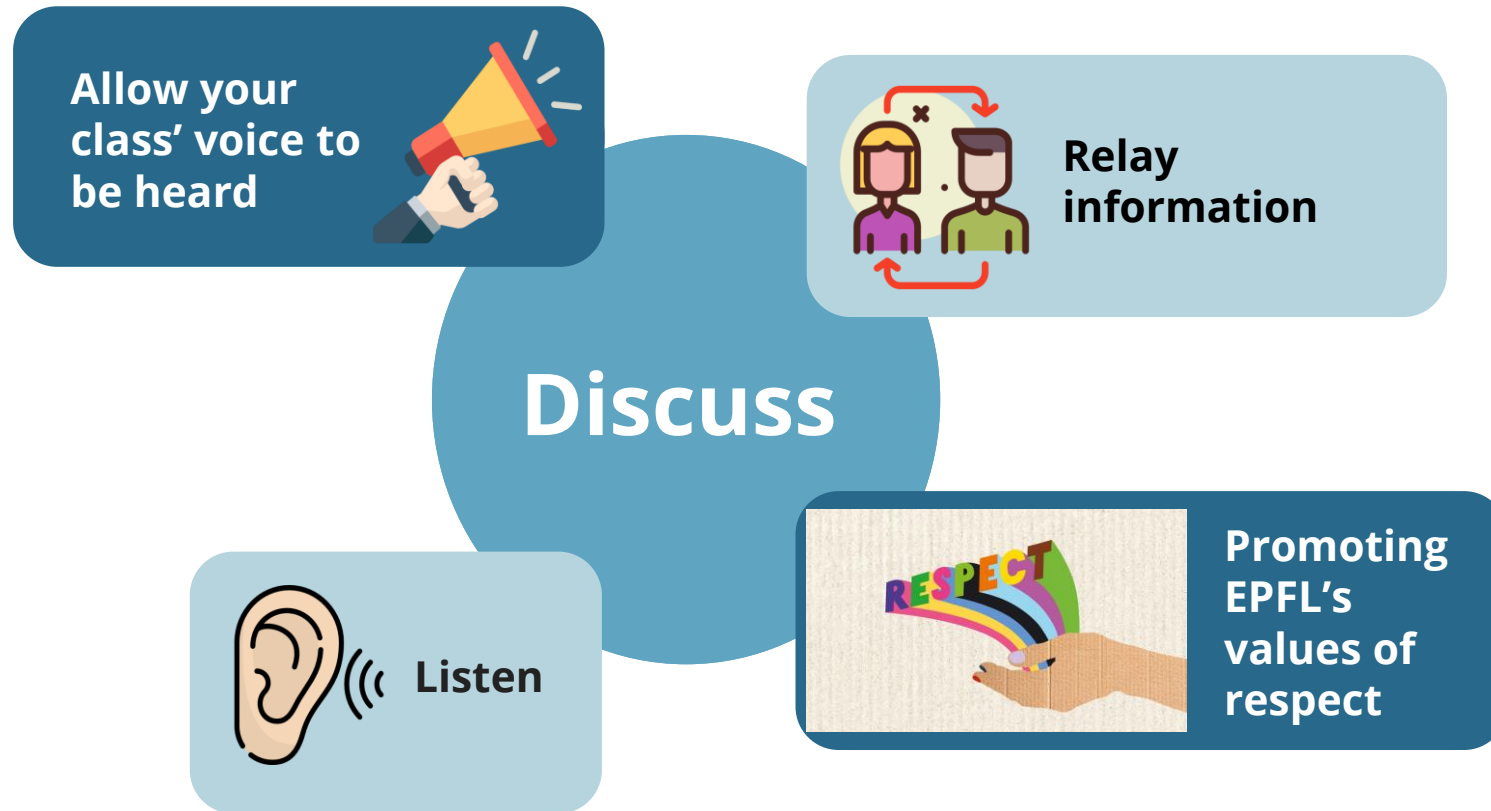
What do class representatives do ?



What do class representatives do ?



What do class representatives do ?



More precisely

**Representation
training**



Running polls

To gather your
class' opinion

More precisely

Representation training



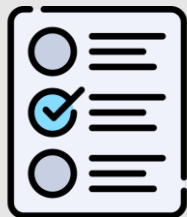
Meetings with EPFL board and your section

To defend the students' interests



Running polls

To gather your class' opinion



Meetings with other students

To figure out solutions and find common problems

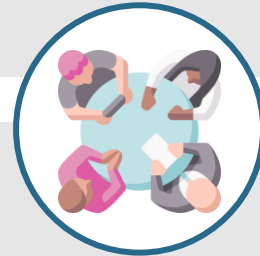
Accurately

Representation training



Meetings with EPFL board and your section

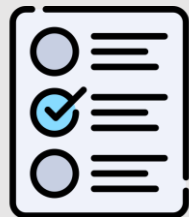
To defend the students' interests



Super cool projects !

Changes in the study plan
Break Week
Study trip

And much more!



Running polls

To gather your class' opinion

Meetings with other students

To figure out solutions and find common problems

Meet wonderful people !



Class representatives from other classes and sections
Teachers with great passion, for teaching and research

Soooo...



A question ?



An issue in a class?

Soooo...



A question ?



An issue in a class?



Class representatives

How to become a student representative ?

How to become a student representative ?

Apply

Sign in now on IS
Academia, until **Friday,**
September 13

IS-ACADEMIA

OUTIL DE GESTION ACADEMIQUE

How to become a student representative ?

Apply

Sign in now on IS
Academia, until **Friday,**
September 13

IS-ACADEMIA

OUTIL DE GESTION ACADEMIQUE

Vote

From **September**
14 to 19 on
IS Academia

IS-ACADEMIA

OUTIL DE GESTION ACADEMIQUE

How to become a student representative ?

Apply

Sign in now on IS Academia, until **Friday, September 13**

IS-ACADEMIA

OUTIL DE GESTION ACADEMIQUE

Vote

From **September 14 to 19** on IS Academia

IS-ACADEMIA

OUTIL DE GESTION ACADEMIQUE

Results

20th September



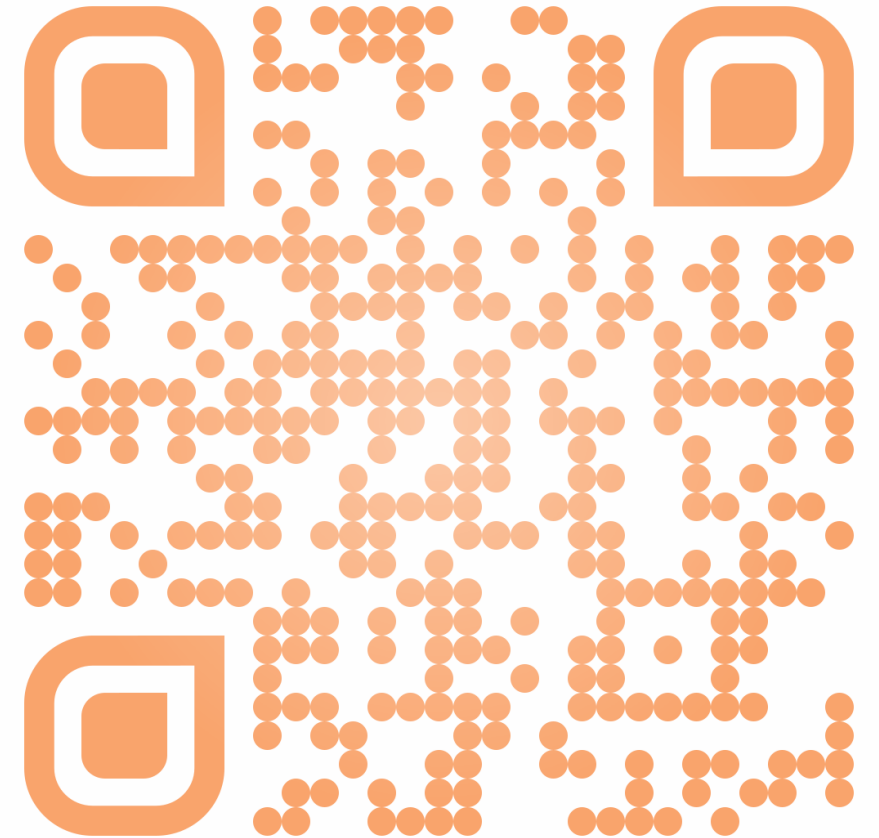
**You can apply now on IS
Academia!**

To know more about representation

Join our **Telegram Representation Channel** to:

- Stay informed about what happens in terms of representation at EPFL
- Give your opinion on important issues

https://go.epfl.ch/telegram_ageprepres



Ask us all of your questions

contact@agepoly.ch

representation@agepoly.ch

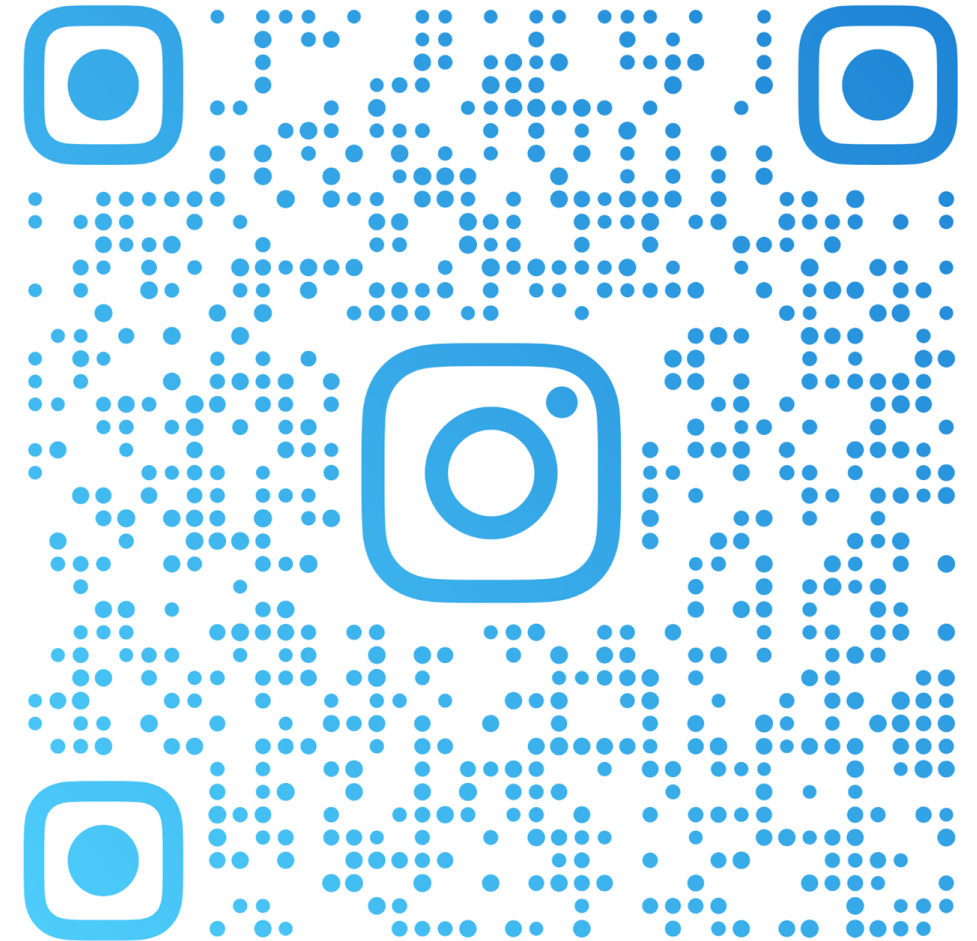


Benjamin Faltin



Lucie Moulin

AGEPoly
wishes you an
excellent
academic year
!



AGEPOLY