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# Linking higher education with the industry

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# Linking higher education with the industry

Lessons learnt (perspectives from industry and academia)

## Overview

- Possible ways of integrating industry-based research into teaching
- Challenges and opportunities for academia
- Challenges and opportunities for industry
- How we are doing this in UPSKILLS
- Initial feedback

# Who am I?

MPhil University of Cambridge

PhD University of Groningen

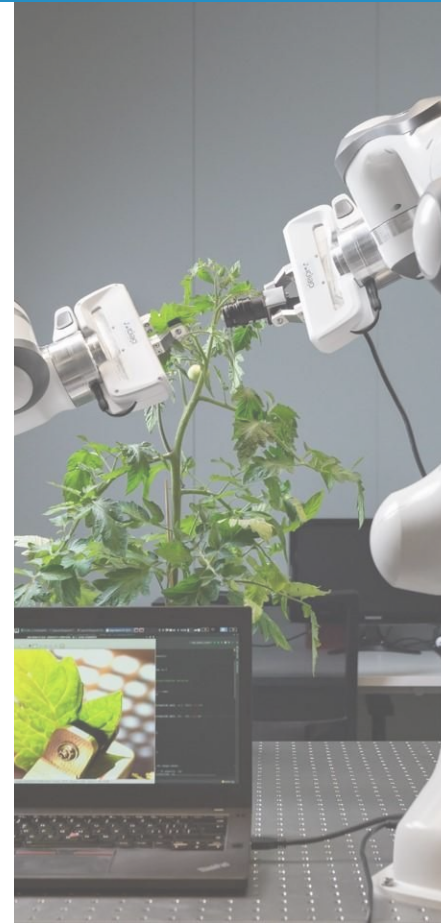
Junior Professorship  
University of Stuttgart

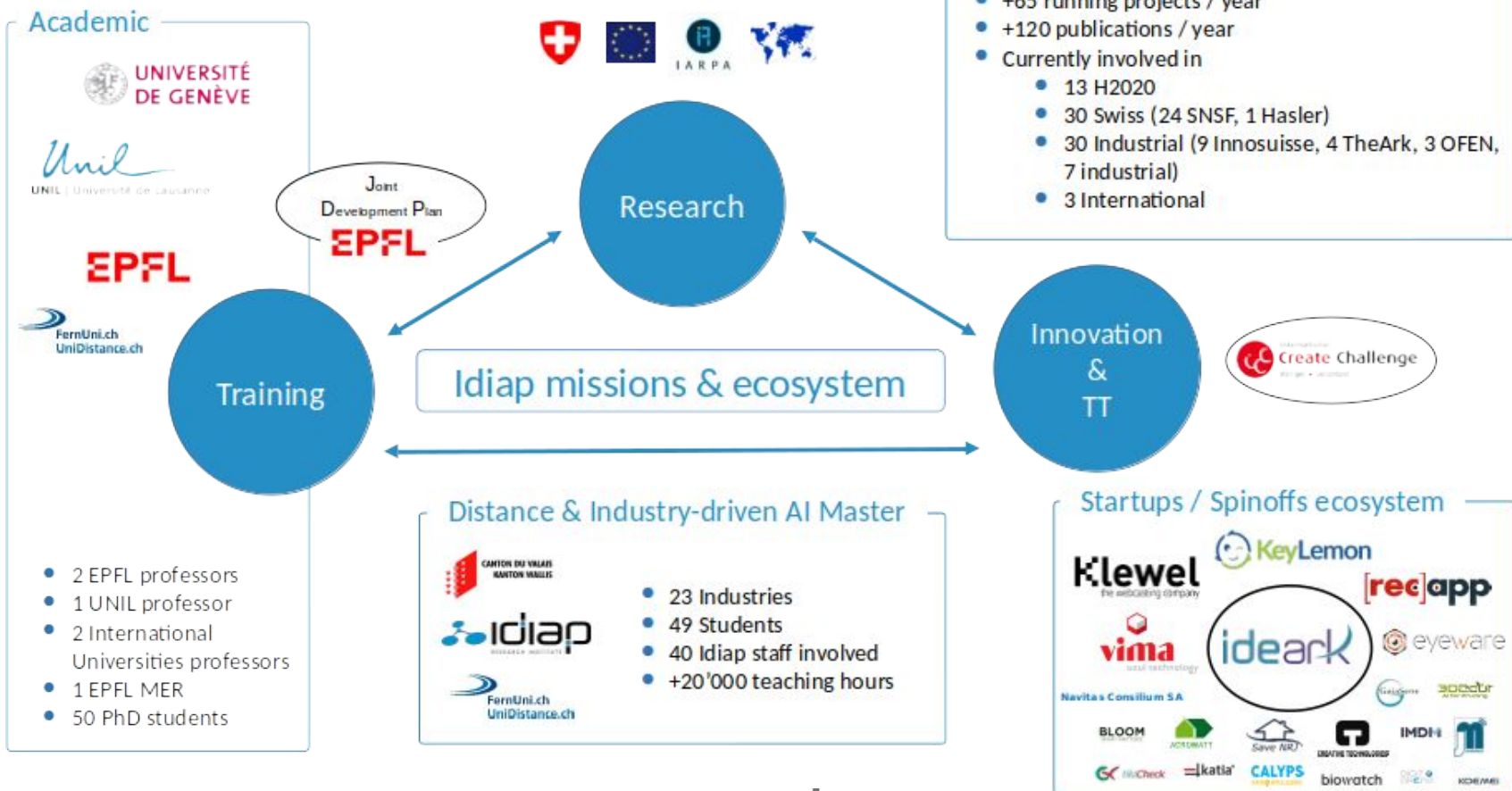
Postdoc University of Geneva

Currently leading the Computation, Language & Cognition Group at  
Idiap in Martigny

Associate Prof. University of Malta

- Independent not-for-profit Research Foundation, created in 1991
- +170 employees, 33 nationalities, 50 PhD students
- Several research groups covering a broad range of AI research areas
- Dedicated R&D engineers team bridging the gap between academia and industry







## Expertise

Signal Processing

Computer Vision

Robotics

Machine Learning

Speech & Language

Human Computer Inter.

Privacy & Security

Data Science

## Data types

Text

Speech and Audio

Images

Video

...

## Application domains

Health and

Life Sciences

Energy

Security

Manufacturing and

Industry 4.0

Media and

Entertainment

Devices



# Industry-based research projects

## How to start?

### Opportunistic:

Example 1: We had a visitor from the Directorate General of Translation of the EU Commission at the University of Malta

I asked her to give a **short presentation** of what they do and what problems they face. The students then worked on an **assignment** based on a task they provided, using their data (list of medical terms). We then **gave back the results** of the systems the students created

Example 2: I was contacted by a company (IBM US) at a conference for a potential collaboration. We supervised a student jointly > resulted in a patent

### Internships as part of curriculum:

BSc Language Technology at Uni Malta has a compulsory internship unit

### Match making through a project:

In the UPSKILLS project, we have a team working on making a match between companies and lecturers

# Industry-based research projects

What are the possible formats?

- Joint supervision of theses (one student, but strong commitment)
- Student project as part of a course (several students, for ects credits or just an assignment)
- Internship unit as part of curriculum
- Standalone internship (one student or more, usually paid)
- ...



# Perspectives from academia: **challenges**

It costs a lot of effort to talk to industry, define a task, get students ready for a particular task. Is it worth the effort?

What will a student get out of it, compared to the effort we need to put into the collaboration?

Will students be willing to do work without being paid? Or should I try to ask the company to pay the students? But what if they get ECTS for the task?

Are companies willing to try and define an interesting task for the students, or is their main aim to get the job done and may not care about what the students learn

But even if that is the case, isn't that what they might face when they go and work for industry anyway, so it is good to be prepared and see if they can change it

How do we get in touch with industry?

# Perspectives from academia: **opportunities**

We prepare students better for the job market > They know what to expect

They can mention this experience in their CVs > Might even get hired

It is interesting for students and lecturers to work with real data and real-world problems

We are creating links with industry, which is good for potential collaborations in the future ( joint research projects)

# Perspectives from industry: **challenges**

It costs a lot of resources to describe a task, prepare the data, get students ready for a particular task. Is it worth the effort?

How many hours of work will a student dedicate for the effort we need to put into the collaboration?

Timing: We often need a particular task done at a particular time. Academia is bound to certain schedules. Timing can be challenging. Need to find a task that is not urgent, but only nice to have

Can we remain in the same course with the same lecturer in subsequent years? That would mean less effort and easier planning

Students will need to work on our data and sometimes using our technology, this may raise issues of disclosure. They may need to sign an NDA

# Perspectives from industry: **opportunities**

We will get tasks done that we might not have the time to do ourselves

We might be able to have several students do the same task, in order to get some inter-annotator agreements, or e.g. for paraphrasing tasks

We might get expertise on a certain topic via the students (and lecturer) involved

We might be able to find new recruits among the students involved

We are creating links with academia, which is good for potential collaborations in the future ( joint research projects)

# Industry-based research projects

## How are we doing this in UPSKILLS?

- UPSKILLS Advisory Board is composed of six members from industry
- We explained them the aims of our projects, and asked for possible projects ( explaining the type of students we will have, their background, the amount of work they can do etc)
- Four gave us potential projects
- We presented the projects in one of the UPSKILLS meetings and asked lecturers for their interest. Three projects were selected by three lecturers.
- We set up meetings between lecturers and industry partners

# Industry-based research projects

## What kind of projects?

- Student from Maltese (Uni Malta) to work with an AI spin-off company from the University of Antwerp: annotation of hate speech for Maltese
- Student from Translation and Technology (UNIBO) to work with Machine translation company in Zurich: MT evaluation
- Student(s) from Institute of Slavic Studies (Uni Graz) to work with multinational AI automotive company: morphological paradigms for Slavic languages

# Industry-based research projects

## **Did all of this work out well?**

- Two out of three projects succeeded in bringing student and company together
- Two out of three projects were concluded in the last few months
- Currently gathering feedback from students and companies
  
- One out of three projects did not find any students interested
- Currently also trying to gather feedback from students that chose not to do the industry-based research project (not easy)

# Industry-based research projects

## **Your experiences and feedback are welcome**

- You probably have interesting experiences to share and lessons learnt
- Happy to hear your experiences and feedback (from industry, students, lecturers)
- Drop me an email: [lonneke.vanderplas@idiap.ch](mailto:lonneke.vanderplas@idiap.ch)
- Report on this task in the UPSKILLS project



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Thanks for your attention!!!