



Co-funded by the  
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of the European Union



## The UPSKILLS needs analysis

*Lead: University of Bologna*

UPSKILLS Consortium:



&  
with financial support from



*University of Geneva*

21 April 2023



**SMASH**

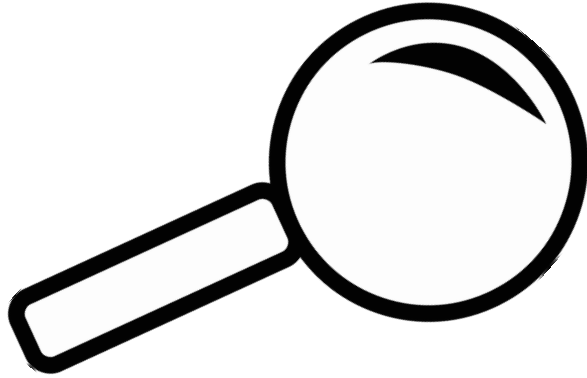
machine learning for science and humanities postdoctoral program

Data science  
Fundamental physics  
**Linguistics (no applications)**  
Climate  
Precision medicine

# Six steps

1. A survey of curricula
2. A literature review
3. A corpus-based analysis of job advertisements
4. A questionnaire for the language industry
5. Interviews with industry representatives
6. A new profile for language and linguistics students

# 1. Curricula



research skills  
data acquisition skills  
data handling skills  
linguistic theory  
research management

BA & MA degrees  
in language and linguistics

*QS World University Rankings in the areas of linguistics and modern languages*

# Sample

122 degrees  
representative sample

12 degrees  
additional study

representation  
<1/4 degrees

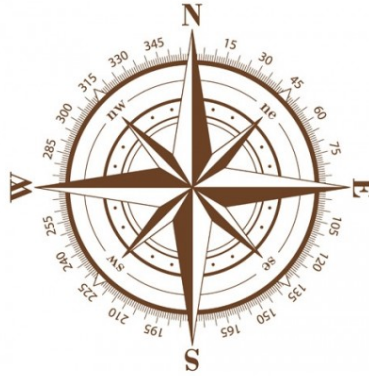
programming,  
machine learning  
and linguistic  
theory:  
MA level

exemplary degrees:  
flexible  
modular  
diverse approach

# 2. Literature

## Language industry surveys

*(CLASS 2020, DigiLing 2017, Lis 2019, Lis 2020, Optimale 2012, Taus 2016, Taus 2017, Taus 2018)*



## Institutional position papers/reports

*(UNESCO 2015, OECD 2018, ELC 2013, EMT 2017)*

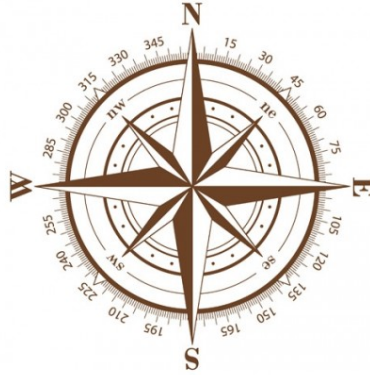
## Academic works

*(EMT 2019, DigiLing 2019, Bernardini et al 2020, Gleason 2018, Tong et al 2018)*

# Key themes

## Language industry surveys

datafication, data management; project management; machine translation; quality control processes; digital marketing



## Institutional position papers/reports

ability to access and critically process information, team work, digital literacy, entrepreneurship; critical thinking, problem solving, creativity, data literacy, basic understanding of AI

## Academic works

research-oriented skills; bringing linguistic knowledge to interdisciplinary teams; technology; data management skills; collaboration skills

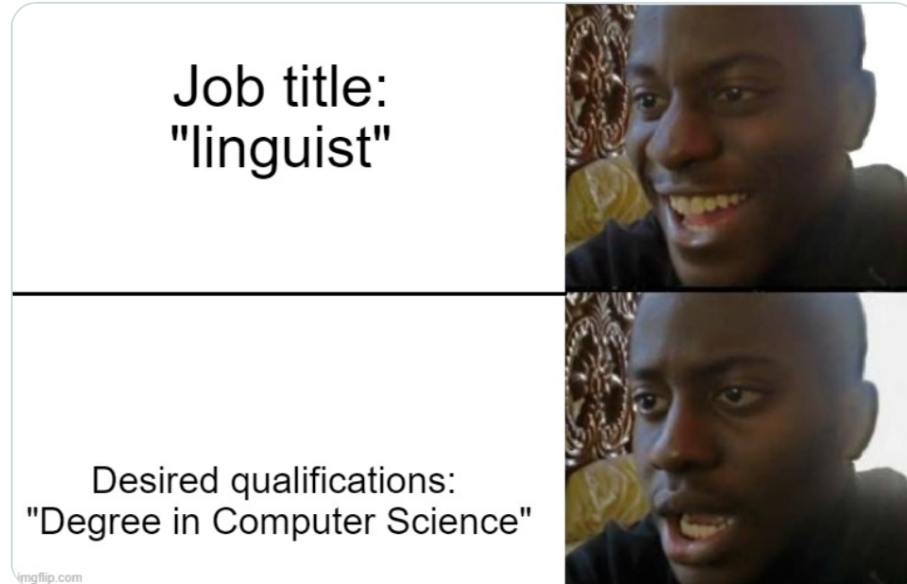
# 3. Corpus analysis



Lil Gas-X (checarina@mastodon.lol)  
@checarina



made a lil meme about the job search



3:08 am · 18 May 2021



# The selection of job ads

- Sources
  - **Technological companies**, e.g. Amazon, Apple
  - **Specialised linguist websites**: LINGUIST List and Career Linguist
  - **General-purpose employment platforms**, e.g. LinkedIn, Indeed.com
- Criteria for selection
  - ✓ Job ads involved language- or linguistics-related tasks requiring digital and/or research skills
  - ✗ Jobs involving almost exclusively content creation tasks (e.g. writing/editorial jobs), or translation and revision tasks
  - ✗ Job ads where a degree (MS or PhD) in a STEM field was a requirement

# Skills/competences & tasks

## *Data & research skills*

“analyse (language) data”, “collect data”, “extract information”, “support research and development”, (conduct) “market research”

## *Technical skills*

(knowledge of a) “programming language” (often: “Python”); “build language models”, “analyse, test or improve performance” of tools

## *Disciplinary knowledge*

“linguistics”, “computational linguistics”, “NLP”, “semantics”, “translation”, “syntax”, “localization”

## *Communication/organisational skills*

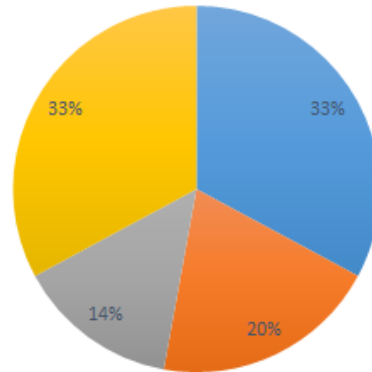
“written and verbal communication skills”, “attention to detail”, “organisational skills”, “ability to thrive in a fast-paced environment”

# 4. Survey

employers from digital and data-intensive sectors, who do not necessarily identify language and linguistics graduates as a target talent pool of employees for their business

70

businesses ranging from language service providers to marketing and finance



- Micro (fewer than 10 employees)
- Small (10 to 49 employees)
- Medium (50 to 249 employees)
- Large (250 or more people)

# Results

## Most important skills:

- problem-solving and communication skills
- attention to detail
- analytical skills
- organisational skills

## Skills most in need of improvement:

- problem-solving
- technical skills
- organisational skills
- communication skills

“Most language experts struggle to develop strategic thinking and often focus on a small set of details”

# 5. Interviews

A total of **12** job market stakeholders coming from **11** different companies participated in our one-to-one interviews.

## Domains

- Language service providers
- Automotive industry
- Language technology
- Insurance services

## Areas of engagement

- Translation
- Localisation
- Computational linguistics
- Speech recognition

# 6. Language data and project specialist

- four sub-profiles -

## Language data analyst

language data collection, annotation, analysis



## Language data scientist

language data and processes research

DATA-ORIENTED



DATA-ORIENTED

ORGANISATIONAL

RESEARCH-ORIENTED

## Language data manager

language data cleaning, curation, management



## Language project manager

language project and workflow coordination