

Bridging the gap to industry

An example in Data Science

A dark blue diagonal shape that starts from the bottom left corner and extends towards the top right corner, covering the lower half of the slide.

What's the point?



Which skills do I put on my CV?

Will I like it?

What is better than academia?

What are the biggest differences?

What will I miss from academia?

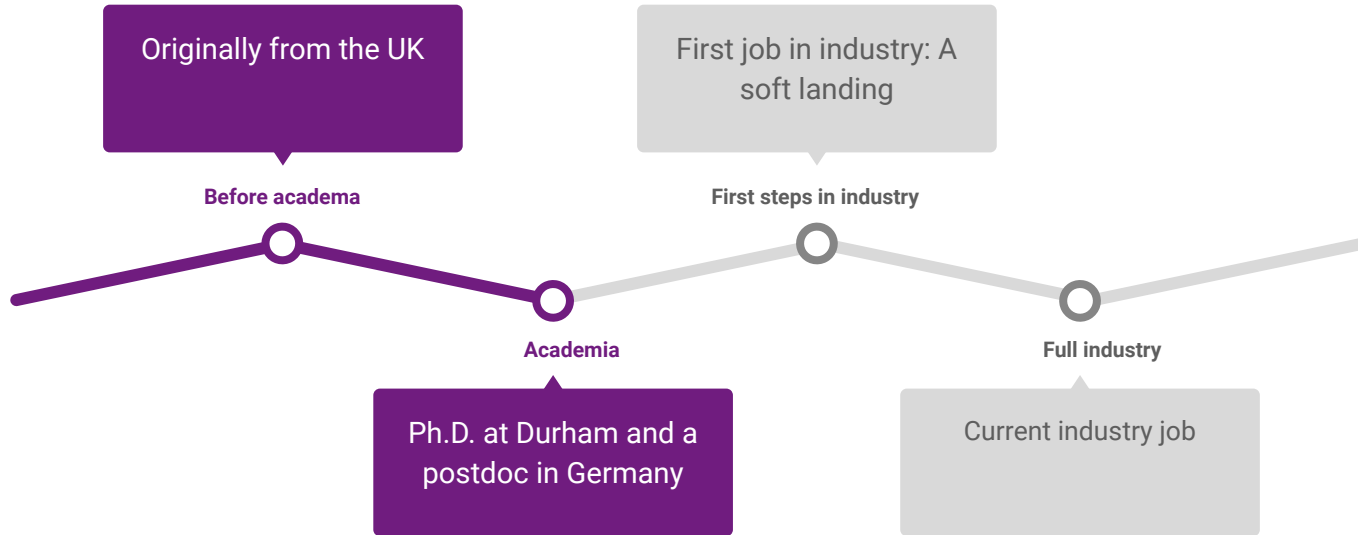


Academia

Industry

A guide from my
experience

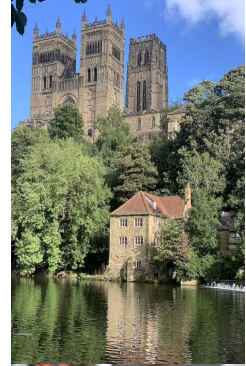
What is my journey?



Academia

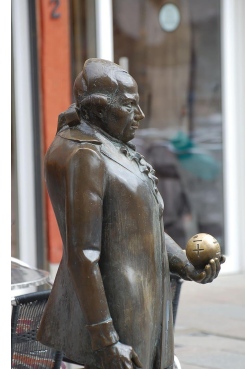
Durham:

- Ph.D. Particle Physics Phenomenology
- Monte Carlo simulation: C++ coding
- **4 years**



Goettingen:

- Move to Germany
- More phenomenological studies
- **1 year**



Heidelberg:

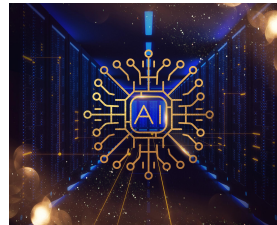
- ML techniques for analysis
- Coding in python
- **2 years**



My key skills from
physics



Programming Analysis



Industry?



Moving to industry: my considerations

Academia offers work flexibility and interesting topics

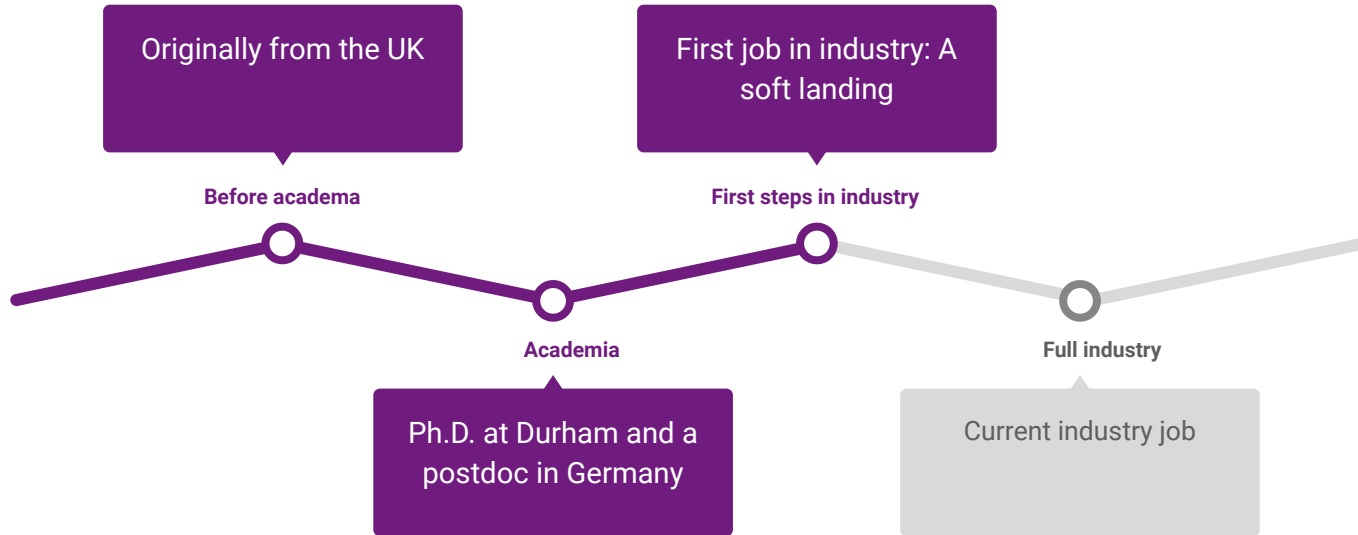
Academia offers more travel opportunities

Industry offers easier working hours

Industry provides stability: easier for a relationship

Opportunity: knew someone in industry

What is my journey?



BCAI: A soft landing



BCAI

1

Bosch center for artificial intelligence

Central research institute for Bosch. Includes a centre for AI with researchers and experts

2

AI usage within Bosch

Targets are to increase AI competency in Bosch colleagues and increase usage in Bosch processes and projects

3

Enabling team

I was based in the enabling team. We produced and led trainings in a range of AI and ML techniques. This ranged from awareness to technical trainings.

What made this easier?



*Working with other
physicists*



Teaching role



Research division



How to find a soft landing

Physicists/Engineers?
Ph.D.?
Research experience?

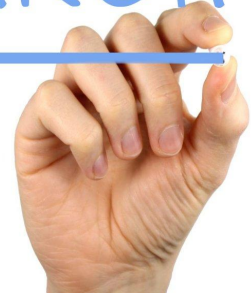
COLLEAGUES

Flat hierarchy?
Flexible work?
Collaboration?

STRUCTURE

Research goals?
Papers?
Patents?

RESEARCH



Skills from physics

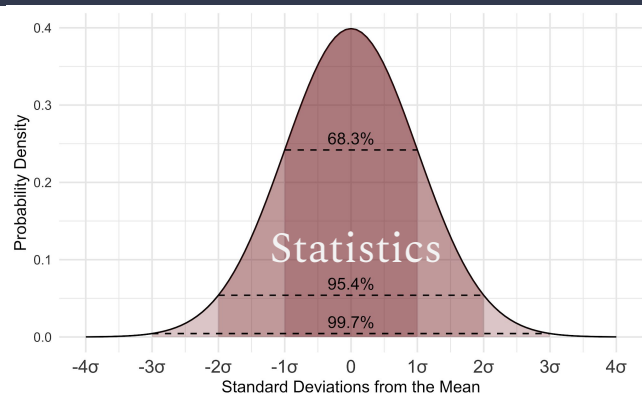


Programming

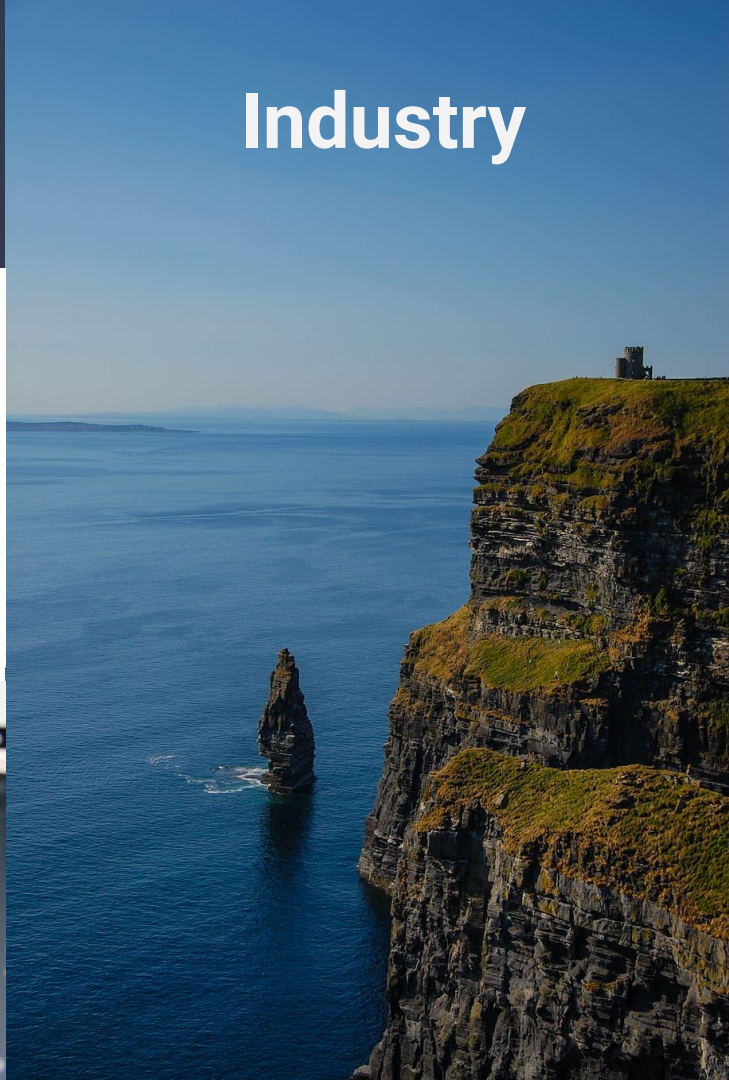
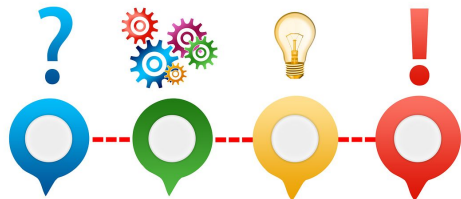
Analysis

Technical skills from physics

Industry



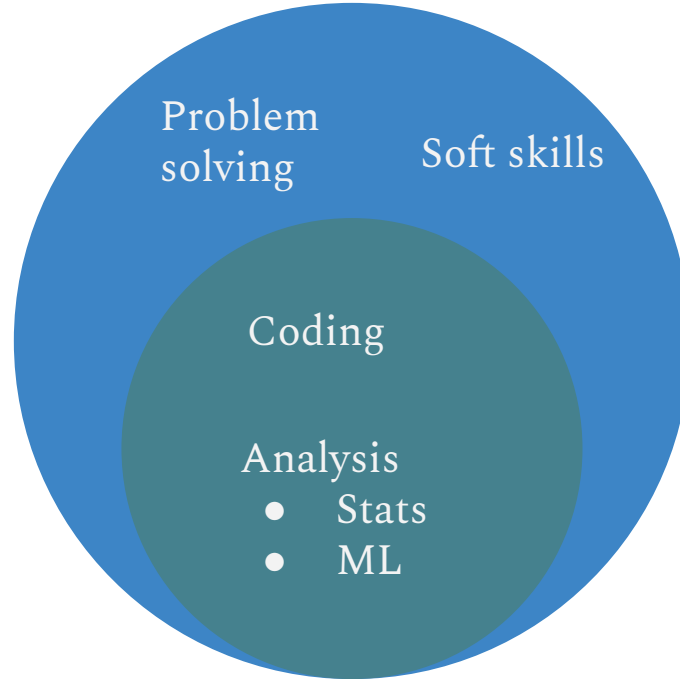
Problem solving



Soft skills from physics



Further skills I had



Skills I knew I was bringing

Physics gives strong soft skills and problem solving skills

– Give examples of how you acquired them –

It's not all easy



9-5

Working hours



Limited computing resources

Windows



Excel

Challenges

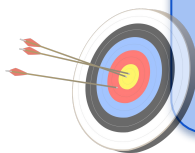
Data security



More repetitive work



GOAL SETTING

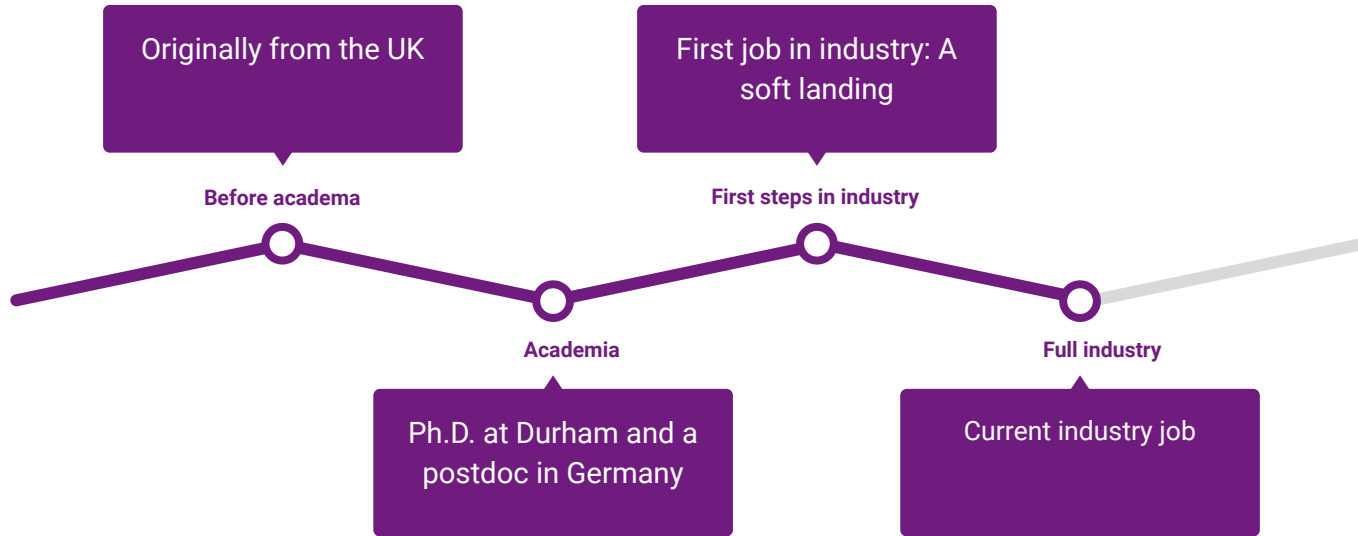


Clear annual goals

Diverse backgrounds



What is my journey?



HC: 'Real' Industry



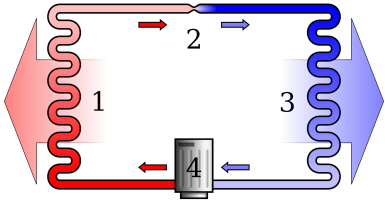
What is 'Real' industry?

Business unit (HC) not research institute

- Focus on selling product
- Work packages related to business goals
- Colleagues have a business not research background



BOSCH



Home Comfort

Boilers and Heat Pumps

What is H/C?



Sales and marketing - human data

What is my role?

Data
visualisation

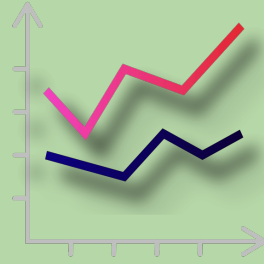
Data
pipelines

Data science/data analysis

Data analysis

Data
scraping

Data visualisation



How to visualise data



PowerPoint



Power BI

Power BI

DAX

Data pipelines



PowerQuery



SQL



Excel



Python



ETL



Data cleaning

Data analyses



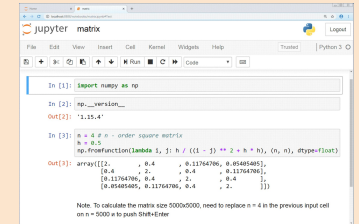
GDPR



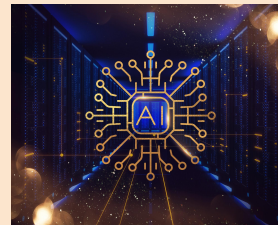
Python scripting



Excel



Jupyter notebook

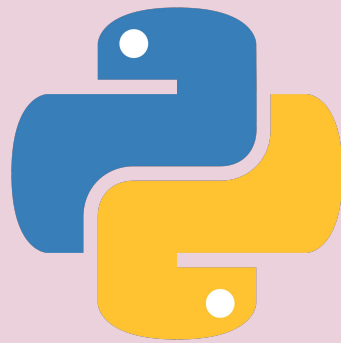


Machine Learning

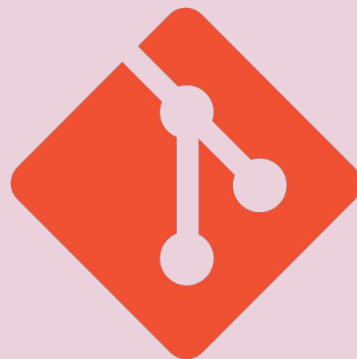


Statistics

Data scraping



Python



Git

Problem solving

- An additional skill useful across the board –
- A selling-point for physicists –

From physics

Python
scripting

Statistics

Machine
learning

RCA (problem
solving)

Both

Git

Excel

ETL

Data
Cleaning

PowerPoint

Visualisation

From industry

GDPR

SQL

Jupyter
notebook

PowerQuery
DAX
PowerBI

Most skills come from physics

– Need fine-tuning to an industry environment –

Getting extra skills

coursera

Online courses



UDACITY

Google

kaggle

Self-study



schools



Colleagues' expertise

How to adapt to industry

- ➔ Don't expect it to be academia
- ➔ Be prepared to be less independent
- ➔ Look for how you can apply your skills
- ➔ Be quick to ask for support

Interesting challenges

Less freedom in work

Steady work

**My positives and
negatives about
industry**

**More reliance on
personal 'brand'**

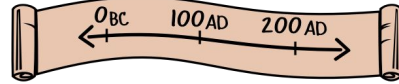
Lots of options to grow

Can be repetitive

Interviews

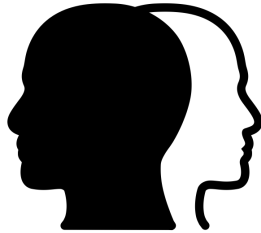


Employers are interested in long-term employment



Employers might not know your field (or maybe they know it very well)

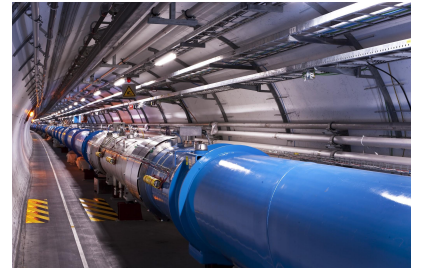
Why are you leaving academia?



Created by rajesh
from Noun Project

Personality and motivation

Be honest about your skills and goals



Is industry for me?

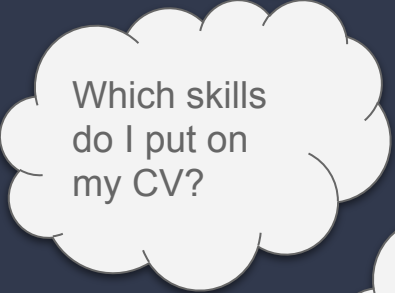
Will I like it?

What is better than academia?

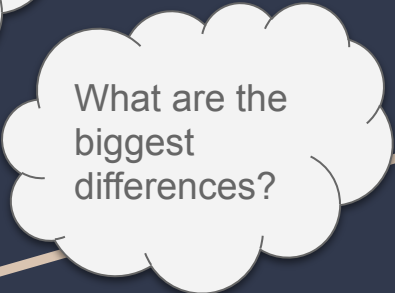
What will I miss from academia?

- Lifestyle in industry:
 - Less travel
 - Less independence/flexibility
 - More stability
 - More diverse backgrounds
- Work in industry
 - More repetitive workload
 - Can have direct, real-world impact
 - More data privacy concerns
 - Wider range of responsibilities
 - Opportunity to grow in many different directions
- Research institutes provide a more familiar environment
- Consider what you enjoy/dislike about academia

Main take-aways

A white thought bubble with a black outline, containing the text "Which skills do I put on my CV?". It is connected to a larger thought bubble below it by a thin black line. Several smaller white circles of varying sizes are scattered above the bubble, suggesting a trail of thought.

Which skills
do I put on
my CV?

A white thought bubble with a black outline, containing the text "What are the biggest differences?". It is connected to a larger thought bubble above it by a thin black line. Several smaller white circles of varying sizes are scattered above the bubble, suggesting a trail of thought.

What are the
biggest
differences?

- Think about what soft skills you have developed from physics
 - Emphasise both technical and soft skills on your CV
- Problem-solving skills are a big benefit
- Many skills can be taken and adapted from physics
 - You will have to identify where
- You will need to work with people who have very different backgrounds
 - Clear communication is vital
- People are likely interested in why you are leaving academia: What are your goals?