PARTICLE PHYSICS

... AND LIFE BEYOND
2005  2010  2012

PhD  Postdoc

ATLAS

Tau reconstruction  Soft-QCD

Triggers  DAQ

Banking / finance?

Stay in HEP?

Consultancy?

Foreign service?

Parliamentary technology assessment
The Norwegian Board of Technology (NBT) advises the Norwegian Parliament and Government on new technology.
What are the major technology trends shaping society?
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2. What opportunities do they bring?
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What opportunities do they bring?

Can we find policy pathways that harness the good, but mitigates the bad?
PARLIAMENTARY TECHNOLOGY ASSESSMENT

CERN prepares you well

...but lots to learn
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Analytical & understand technology

...but what really matters at the policy level? Broader picture and strip down to essentials.

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Collaborative skills

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...but people in different disciplines speak different “languages”...but lots to learn
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...all narratives are “coloured”. Your job to strike a balance.

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Presentations

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...wide range of audiences and formats. Complex, multi-faceted issue in 5 min.
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Presentations

Methodical and thorough research

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...all narratives are “coloured”. Your job to strike a balance.

...wide range of audiences and formats. Complex, multi-faceted issue in 5 min.

...draw up advice on imperfect, incomplete, uncertain information.

...but lots to learn
2005  2010  2012  2017

PhD  Postdoc

ATLAS

Data science in the public sector

Parliamentary technology assessment
From cradle to grave…
From cradle to grave…

Figure 6.2. Important user groups in NAV. Figures as of year-end 2017.

Source: NAV
NAV

2.8 M people receive

60+ benefits and services

In a 5 year period...

...1 in 2 will have touched base with NAV

1
3

National budget
Data science @ NAV

Process mining

NLP

Pathways and bottlenecks

Classify and group
Data science @ NAV

Process mining

NLP

Pathways and bottlenecks

Classify and group
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Process mining

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Classify and group
Data science @ NAV

Using ML to generate synthetic data

Real data

Synthetic data

Real - synthetic

Diff Correlation Structure
Data science @ NAV

Using ML to generate synthetic data

Real data

Synthetic data

Real - synthetic

Diff Correlation Structure
Data science @ NAV

Bias & Explainability

Before bias mitigation

After bias mitigation

Model average

Your particular outcome

A6 - Savings account_A64 = 0  A4 - Purpose_A41 = 0  A8 - Savings account_A81 = 1  A5 - Credit amount = 4,189  A3 - Credit history_A34 = 0  A8 - Installment rate = 4  A13 - Age = 28  A3 - Credit history_A32 = 1  A3 - Credit history_A30 = 0  A9 - Civil sit
DATA SCIENCE IN THE PUBLIC SECTOR

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CERN prepares you well

Data served on a platter.

...but lots to learn

...take active part in entire pipeline, from DAQ to deployment
DATA SCIENCE IN THE PUBLIC SECTOR

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Data is “neutral”.

...take active part in entire pipeline, from DAQ to deployment

...human data is messy, with lots of social, ethical and legal dimensions

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Dive deep, become a “local expert”

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...need to do everything, so generalists are often more coveted than specialists
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Computing is HEP-tailored

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...python, R, SQL, various commercial cloud based solutions
DATA SCIENCE IN THE PUBLIC SECTOR

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Data is “neutral”.

Dive deep, become a “local expert”

Computing is HEP-tailored

Collaborate in highly specialised teams

...take active part in entire pipeline, from DAQ to deployment

...human data is messy, with lots of social, ethical and legal dimensions

...need to do everything, so generalists are often more coveted than specialists

...python, R, SQL, various commercial cloud based solutions

...need to work with business side. Want advice and solutions, not plots.

...but lots to learn
What an employer may be asking:
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- "Are you a "lone rider" with "narrow" interests?" [versatility]
  - Convince recruiter you are able and willing to work with many different kinds of people and learn a broad range of things (including their business problems!)