



Lecture 3: Introduction to Professional Practice

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Welcome!

About me

- Completed my PhD in 2015 at the University of Edinburgh
 - Intersection of software engineering (SE) and human computer interaction (HCI) applied to healthcare IT
- Several years of postdocs in healthcare IT
- Since 2017 a teaching-focused academic
- Now conducting research mostly in Computer Science Education (CSEd), applying SE and HCI.
 - Building and evaluating educational tools
 - Developing good approaches for student groupwork

Why Professional Practice?

Go to **wooclap.com** and use the code **DABNSC**

What do you think we will cover in the Professional Practice part of the SEP...

Let's vote!

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Click on the projected screen to start the question answers received

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100%

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Why Professional Practice

- Moving towards a more digitalised world
- Computing holds more and more power
- We need more professionalism in the way ICT developers and implementers undertake their tasks
 - E.g. standards of conduct or legal constraints on your work





Why Professional Practice?

- The ProP component will allow you to develop key aspects of professional practice, including:
 - public and private sector organisations, organisational structure, finance, audit
 - legal and regulatory frameworks
 - social and ethical issues, privacy, human rights

Schedule

- Week 1: Introduction to Professional Practice
- Week 3: Organisations
- Week 5: Intellectual Property, Patents and Open Source
- Week 6: Standards and Functional Safety
- Week 8: Equality, Data Protection and Freedom of Information
- Week 10: Information Privacy, Accountability and Ethics

Reading

Key Professional Issues Texts (4)▼		...
	BOOK Professional issues in information technology ✓ Bott, Frank, British Computer Society,, Second edition., Swindon, British Computer Society, 2014 Available at Main Library Main Library (HUB SHORT LOAN) - Ground floor: T58.5 Bot. and more locations Check availability >	...
	BOOK A Rulebook for Arguments. ✓ Weston, Anthony., 5th ed., Cambridge, Hackett Publishing Company, Incorporated, 2018 Check availability >	...
	WEBSITE ACM Code of Ethics and Professional Conduct ✓ ACM, ACM, 22 June 2018 Check availability >	...
	WEBSITE BCS Code of Conduct ✓ BCS, BCS Check availability >	...

- Weekly reading available on OpenCourse webpage- Weekly reading
 - Essential vs recommended
- Resources available electronically from Resource list

Sources of support

- **Tutorial 1- IMPORTANT!**
- **Labs**
 - Ask lab demonstrators
 - I will be present in Tuesday labs for ProP questions
- **Piazza** online discussion forum, *prop* tag
- **Email:** Cristina.Alexandru@ed.ac.uk, *for ProP questions*

This week

- The art of arguing / how to argue correctly
 - Useful for reflective essays, but not only!
- Example: arguing for Digital Transformation

**The art of arguing & how to argue correctly
(not only) in
reflective essays**

Motivation

- Make well-informed and correct decisions
- Based on argument and evidence
- We follow **Weston's*** '**General rules**' in a SE setting
 - Covered in his 1st Chapter

* in his e-book, "A Rulebook for Arguments", which can be found in the key texts part of the reading list on Learn

General rule 1: Resolve premises and conclusions

- **Conclusion** – we should deploy more robots in healthcare
- **Premises** – the reasons why we want to draw this conclusion:
 - Robots make fewer mistakes than humans
 - They don't get tired.
 - They are more precise
 - You don't have to pay robots

Be aware – "Resolve" has two meanings: to distinguish / to commit

General rule 2: Unfold your ideas in a natural order

Samples:

1. *We should deploy more robots in healthcare* because they make fewer mistakes than humans. They make fewer mistakes because they are more precise, and they do not get tired. In addition, we may be able to reduce the cost of healthcare provision because we do not need to pay robots.
2. Think of a reliable accurate robot doing your operation. So much better than a human and very cheap to employ. We should have more of them.

General rule 2: Unfold your ideas in a natural order

Go to **wooclap.com** and use the code **DABNSC**

Which writing sample is more convincing argument?

Copy participation link

1 The first 0% 0

2 The second 0% 0

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100%

0 / 0

General rule 2: Unfold your ideas in a natural order

Samples:

1. *We should deploy more robots in healthcare* because they make fewer mistakes than humans. They make fewer mistakes because they are more precise, and they do not get tired. In addition, we may be able to reduce the cost of healthcare provision because we do not need to pay robots.
2. Think of a reliable accurate robot doing your operation. So much better than a human and very cheap to employ. We should have more of them.

The first sample is better as ideas follow naturally, using connectors.

General rule 3: Start from reliable premises

Look at our premises:

- **the reasons why we want to draw this conclusion:**
 - **Robots make fewer mistakes than humans**
 - They don't get tired.
 - They are more precise
 - **You don't have to pay robots**

Are these reliable?

General rule 3: Start from reliable premises

Look at our premises:

– **the reasons why we want to draw this conclusion:**

- **Robots make fewer mistakes than humans**
 - They don't get tired.
 - They are more precise
- **You don't have to pay robots**

*Are these reliable? **Not really...***

Looking at the premises is part of assessing how strong an argument is.

If you cannot argue for a premise adequately, find another one!

General rule 4: Be concrete and concise

1. A surgical robot is a wonderful thing. It looks so clean and shiny and can cut to incredible accuracy. It seems like so much more of a reliable thing than a doctor who might be covered in germs. If we deploy them everyone will be so much more content.
2. Surgical robots can cut to micron accuracy and always operate to peak efficiency and are cheap to run. We should deploy more of them.

Which one is better?

General rule 4: Be concrete and concise

1. A surgical robot is a wonderful thing. It looks so clean and shiny and can cut to incredible accuracy. It seems like so much more of a reliable thing than a doctor who might be covered in germs. If we deploy them everyone will be so much more content.
2. Surgical robots can cut to micron accuracy and always operate to peak efficiency and are cheap to run. We should deploy more of them.

The second is better, as it is to the point/ not using 'filler' words.

General rule 5: Build on substance and not overtone

1. A surgical robot is a wonderful thing. It looks so clean and shiny and can cut to incredible accuracy. It seems like so much more of a reliable thing than a doctor who might be covered in germs. If we deploy them everyone will be so much more content.
2. In randomized controlled trials for minor surgery, surgical robots produce better results in 99.5% of cases [citation].

Which one is better?

General rule 5: Build on substance and not overtone

1. A surgical robot is a wonderful thing. It looks so clean and shiny and can cut to incredible accuracy. It seems like so much more of a reliable thing than a doctor who might be covered in germs. If we deploy them everyone will be so much more content.
2. In randomized controlled trials for minor surgery, surgical robots produce better results in 99.5% of cases [citation].

The second is better, as it brings evidence!

General rule 6: Use consistent terms

- A surgical robot is a wonderful thing. It looks so clean and shiny and can cut to incredible accuracy. It seems like so much more of a reliable thing than a doctor who might be covered in germs. If we deploy surgical automata everyone will be so much more content.

Can you find any problem here?

General rule 6: Use consistent terms

- A surgical **robot** is a wonderful thing. It looks so clean and shiny and can cut to incredible accuracy. It seems like so much more of a reliable thing than a doctor who might be covered in germs. If we deploy surgical **automata** everyone will be so much more content.

Two words used to mean the same thing. This will be confusing to the reader!

Summary

1. Resolve premises and conclusions
2. Unfold your ideas in a natural order
3. Start from reliable premises
4. Be concrete and concise
5. Build on substance not overtone
6. Use consistent terms

Let's try to apply this

Example: Digital Transformation

The following three slides have brief extracts from three organizations all arguing for Digital Transformation.

They are:

- The International Monetary Fund (IMF)
- The Organisation for Economic Co-operation and Development (OECD)
- The World Economic Forum (WEF)

International Monetary Fund (IMF)

Digital platforms are recasting the relationships between customers, workers, and employers as the silicon chip's reach permeates almost everything we do – from buying groceries online to finding a partner on a dating website. As computing power improves dramatically and more and more people around the world participate in the digital economy, we should think carefully about how to devise policies that will allow us to fully exploit the digital revolution's benefits while minimizing job dislocation.

Organisation for Economic Cooperation and Development (OECD)

Digital technologies are transforming our lives and our economies. They change the way firms produce goods and services, innovate, and interact with other firms, workers, consumers and governments. These technologies seem to offer a vast potential to enhance firm productivity and ultimately living standards. For example, cloud computing gives firms access to flexible data storage and processing capacities, online platforms can make their interactions with consumers more fluid, and artificial intelligence enables them to automate increasingly complex tasks (OECD, 2019a).

World Economic Forum (WEF)

The world is being transformed by new technologies, which are redefining customer expectations, enabling businesses to meet these new expectations, and changing the way people live and work. Digital transformation, as this is commonly called, has immense potential to change consumer lives, create value for business and unlock broader societal benefits.

Which one is better?

Go to **wooclap.com** and use the code **DABNSC**

Which sample did you like [Copy participation link](#) ment for Digital Transformation?

- 1 IMF 0% 0
- 2 OECD 0% 0
- 3 WEF 0% 0

Click on the projected screen to start the question

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Which one is better?

- They each argue for Digital Transformation in different ways based on their aims:
 - IMF are last-resource lenders for countries:
 - Care about jobs
 - OECD are a group of countries with trade relations
 - Address governments and economies
 - WEF are a gathering of companies
 - Care about business interests
 - More positive/ forward-looking
- ***Make sure you don't provide as evidence sources which have an interest in supporting your topic! That is not reliable evidence!***

Resources

- **Essential:**

- Weston
 - Chapter 1: "Short Arguments: Some General Rules"

- **Recommended:**

- Bott:
 - Preface
 - Chapter 1: Law and Government
 - Chapter 2: The Computing Profession
- ACM Code of Ethics