Software Engineering and Professional Practice (SEPP)

Lecture 3: Introduction to Professional Practice

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Welcome!

Why Professional Practice?

- What are your thoughts?

Why Professional Practice?

- To highlight and allow students to develop key aspects of professional practice, including:
  - public and private sector organisations, organisational structure, finance, audit

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

Schedule

- Week 1: Introduction to Professional Practice
- Week 3: Organisations
- Week 5: Intellectual Property, Patents and Open Source *(will be guest lecture by an IP lawyer)*
- 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 ›

Bott readings for this week:
- Preface
- Chapter1: Law and Government
- Chapter2: The Computing Profession

Recommended:
"Short Arguments: Some General Rules" in Weston

ACM Code of Ethics

Additional Sources of Support

- **Piazza** online discussion forum
- **Email**: asejfia@ed.ac.uk, *for ProP questions*

This week

- Readings mentioned before

- Course Overview
- The art of arguing / how to argue correctly
- Reflective essays

- Digital Transformation

- Quizzes

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* arguments in a SE setting
- (General rules covered in the 1st Chapter)

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*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: 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: Unfold your ideas in a natural order

- *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.

- 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: Unfold your ideas in a natural order

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?

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

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

Be concrete and concise

- 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.

Build on substance not overtone

- 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.

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.

Summary

- Resolve premises and conclusions

- Unfold your ideas in a natural order

- Start from reliable premises

- Be concrete and concise

- Build on substance not overtone

- Use consistent terms

Let's try to apply this

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

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

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

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.

Digital Transformation

Resources

- For Additional Resources on these statements, see the Week 1 in the Professional Practice section on Learn.