Description

Governments, industry organizations and individuals are increasingly adopting computerized systems and services that are becoming an integral part of local economies and are shaping the social fabric. Within regulated industry sector, computing applications are subject to safety regulations and strict quality control. In other sectors, the quality is controlled by public policies and market competition. With rapid changes and a lag between practices, policies and regulations, it is of utmost importance for computing professionals to be aware of the impactful and long-lasting implications of their work and to adhere to the principles of professional ethics.

The aim of this Seminar is to enable computing professionals to apply critical thinking and logical reasoning to specific ethical issues that they may encounter in their work and to develop practices that adhere to ethical frameworks, professional guidelines, and computing design principles to delivery quality systems. We will use ACM Code of Ethics to discuss accountability and responsibility in computing profession and review the emerging regulations aimed at quality assurance in data science and AI.

The Seminar includes short lectures and group assignments taken during the sessions. Lectures cover four topics, reflecting on the techniques and methods commonly used in Data Science:

- Ethics Theories
- Professionalism & Professional Code of Conduct
- Ethical Design & Privacy Protecting Principles
- Ethics for Safety & Reliability, Accountability & Responsibility

Preparation: Students are advised to select a simple machine-learning (ML) project that they are familiar with and can run on one of the online platforms with ML toolkits (e.g., a Google Colab). The selected example will be used to discuss reproducibility of the ML set up and validation of the outcomes.
Schedule

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<th>7 April 2022</th>
<th>Lectures</th>
<th>Group Exercises</th>
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<tr>
<td>9:00</td>
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<td>1. Ethics Theories</td>
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<tr>
<td>10:30 - 11:00</td>
<td>Break</td>
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<td>11:00</td>
<td>11:20</td>
<td>3. Ethical Design &amp; Privacy Protecting Principles</td>
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<td>12:20</td>
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<td>Wrap up discussion</td>
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<td>12:30 - 14:00</td>
<td>Lunch</td>
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Topics

1. Ethics Theories
   - Why Ethics Theories? – Discussion of ethics and ethics theories; common approaches to practical ethics
   - Specific Ethics Theories: Main concepts related to ethics theories; main types of ethics theories and building arguments for ethical issues.

   Reading
   - Chapter 1, Ethics in a Computing Culture (Brinkman and Sanders, 2013)
   - Chapter 1, Ethics for the Information Age (Quinn, 2013)

2. Professionalism & ACM Code of conduct
   - Meaning of professionalism: definitions and common requirements
   - Computing profession and requirements for professionalism in computing
   - Professional Codes in Computing: different professional codes; aspects and issues covered in professional codes; use of professional odes to build arguments in respect to given ethical scenarios.

   Reading
3. Ethical Design and Privacy Protecting Principles

- Perspectives on Privacy: multi-dimensional nature of privacy and trade-offs
- Theory of privacy; Solove’s taxonomy of privacy problems.

Reading

- Chapter 4 of the book Ethics for the Information Age (Quinn, 2013)

4. Ethics for Safety and Reliability, Accountability and Responsibility

- Failure of Computer Systems: effects of computer systems failure; causes of software failure
- Importance of Accountability: define accountability and explain its importance for morality, ethics and professionalism; barriers for accountability
- Moral Responsibility in Computing: Criteria and rules for moral responsibility in computing
- Processes and regulations in data quality and AI quality assurance.

Reading

- Chapter 8 of the book Ethics for the Information Age (Quinn, 2013)