Computer Science and Society

Course Description

Computer science shapes society in a special way and, thus, has a significant impact on it. Depending on its application and prevailing conditions, it can help to improve society and living conditions or cause and exacerbate surveillance, unemployment, and other social problems. In many cases, it is not the results of computer science itself that are “good” or “bad,” but the results can be used to serve very different purposes (“dual use”). In this module, students acquire the basic tools to understand the effects of computer science in general and its effects on their everyday work as a data scientist.

Contents

1. Introduction
   1. Computer Science, Society, and the Information Society
   2. Historical Overview of Computer Science and the Internet
   3. What is Computer Science?
   4. Relevant Organizations
2. The Role of Data in the Information Society
   1. Data as a Commodity
   2. Data Protection and Data Spying
   3. Long-Term Archiving
3. Economic Impacts of the Information Society
   1. Globalization and the Formation of Monopolies in the Economy
   2. Open Movement
   3. Change in the Labor Market
   4. Intellectual Property
4. Social Impacts of the Information Society
   1. Social Networks
   2. Surveillance
   3. Digitization of Education
   4. Women in Computer Science
5. Infrastructure Vulnerability
   1. Attacks and Accidents
   2. Technical Infrastructure
   3. Political and Social Infrastructure
6. Computer Science and the Military
   1. The Military as the Driver of Computer Science
   2. Cyber War
   3. Dual Use
7. Responsibility in Computer Science
   1. Ethics of Responsibility According to Jonas
   2. Ethical Guidelines for Computer Science in Society
   3. Decision-Making by Algorithms
   4. Mechanisms for Implementing Responsibility in Computer Science