1 Informatics

Informatics is the study of computational systems.[1][2] According to the ACM Europe Council and Informatics Europe, informatics is synonymous with computer science and computing as a profession,[3] in which the central notion is transformation of information.[1][4] In some cases, the term "informatics" may also be used with different meanings, e.g., in the context of social computing[5] or library science.[6]

In some countries, depending on local interpretations and contexts, the term "informatics" is used synonymously to mean information systems, information science, information theory, information engineering, information technology, information processing, or other theoretical or practical fields. In Germany, the term informatics closely corresponds to modern computer science. Accordingly, universities in continental Europe usually translate "informatics" as computer science, or sometimes information and computer science, although technical universities may translate it as computer science & engineering.[7][8] In some countries, this term is associated with natural computation and neural computation.[1][9]

In the United States, however, the term informatics is mostly used in context of data science, library science[6] or its applications in healthcare (health informatics),[10][11] where it first appeared in the US.

The University of Washington uses this term to refer to social computing.[5] The Government of Canada uses the term to refer to operational units offering network and computer services to the various departments.[12]

2 Etymology

In 1956, the German informatician Karl Steinbuch and engineer Helmut Gröttrup coined the word Informatik when they developed the Informatik-Anlage[13] for the Quelle mail-order management, one of the earliest commercial applications of data processing. In April 1957, Steinbuch published a paper called Informatik: Automatische Informationsverarbeitung ("Informatics: Automatic Information Processing").[14] The morphology—informat-ion + -ics—uses "the accepted form for names of sciences, as conics, mathematics, linguistics, optics, or matters of practice, as economics, politics, tactics",[15] and so, linguistically, the meaning extends easily to encompass both the science of information and the practice of information processing. The German word Informatik is usually translated to English as[16] computer science by universities or computer science & engineering by technical universities (German equivalents for institutes of technology). Depending on the context, informatics is also translated into computing, scientific computing or information and computer technology. The French term informatique was coined in 1962 by Philippe Dreyfus.[17] In the same month was also proposed independently by Walter F. Bauer (1924–2015) and associates who co-founded software company Informatics Inc. The term for the new discipline quickly spread throughout Europe, but

it did not catch on in the United States. Over the years, many different definitions of informatics have been developed, most of them claim that the essence of informatics is one of these concepts: information processing, algorithms, computation, information, algorithmic processes, computational processes or computational systems.[18][1]

The earliest uses of the term informatics in the United States was during the 1950s with the beginning of computer use in healthcare.[19] Early practitioners interested in the field soon learned that there were no formal education programs, and none emerged until the late 1960s. They introduced the term informatics only in the context of archival science, which is only a small part of informatics. Professional development, therefore, played a significant role in the development of health informatics.[19] According to Imhoff et al., 2001, healthcare informatics is not only the application of computer technology to problems in healthcare, but covers all aspects of generation, handling, communication, storage, retrieval, management, analysis, discovery, and synthesis of data information and knowledge in the entire scope of healthcare. Furthermore, they stated that the primary goal of health informatics can be distinguished as follows: To provide solutions for problems related to data, information, and knowledge processing. To study general principles of processing data information and knowledge in medicine and healthcare.[20][21] The term health informatics quickly spread throughout the United States in various forms such as nursing informatics, public health informatics or medical informatics.

Analogous terms were later introduced for use of computers in various fields, such as business informatics, forest informatics, legal informatics etc. These fields still mainly use term informatics in context of library science.

3 Informatics as information processing science

In the early 1980s, K.A Nicholas published “Informatics: Ready for the Information Society"proposing definition of Information as “the study and the practice of skills related to information, its collection, storage, retrieval, analysis and publicatin. In short; - Information Handling. “It had been developed in the South Australian Education System at a grass root level. <K.A Nicholas published “Informatics: Ready for the Information Society"1983 - National Library of Australia>

4 Informatics as information science

In the fields of geoinformatics or irrigation informatics, the term – informatics usually mena information science, in context related to libray science. This was the first meaning of information introduced in Russia in 1996 by A.I Mikhailov, R.S Gilyarevskii, and A.I. Chernyi which referred to a scientific discipline that studies the structure and properties of scientific information.[22] In this context, the term was also used by the Internation Neuroinformatics Coordinating Facility. Some scientists use this term, however, to refer to the science of information processing, not data management[28].

In the English-speaking world, the term *informatics* was first widely used in the compound _medical informatics taken to include “the cognitive, information processing, and communication tasks of medical practice, education, and research, including information science and the technology to support these tasks"[29]. Many such compounds are now in use; they can be viewed as different areas of “applied informatics".