UNIVERSITÉ DE FRIBOURG
UNIVERSITÄT FREIBURG

DEPARTEMENT D'INFORMATIQUE
DEPARTEMENT FÜR INFORMATIK

# INFORMATICS COLLOQUIUM

## Speaker:

**PD Dr. Rudolf Seising, The Research Institute for the History of Science and Technology, Deutsches Museum, Munich, Germany**

## From Cybernetics and Systems Theory to Computer Science and Fuzzy Sets: Historical facts and future prospects

**Abstract:**
After World War II scientists and technicians among Claude E. Shannon and Norbert Wiener established the new research field of Information Theory. Some of them referenced the work of appropriate experts, e.g. MIT colleague Ernest Guillemin and a new generation communication engineers would consolidate their research, e.g. Lotfi A. Zadeh, who passed in September 2017.By forming new concepts, Zadeh tied directly into Wiener's statistical basis of filter theory but then immediately surpassed it. If filters that were realized as electrical circuits did not operate according to the mathematical theory, then one must be content with less! His attempts to describe real systems in a mathematically precise manner failed. There were questions about the problems of pattern recognition, which Zadeh was beginning to ponder in terms of the gradual membership of elements to sets. He introduced Fuzzy Sets in order to solve the problem of abstraction in pattern recognition in a "natural and comfortable way". From the content of some unpublished documents and some rather non-famous papers by Lotfi A. Zadeh it is argued that the emergences of Computer science and his theory of Fuzzy Sets have been historically interlinked. Zadeh's task as Chair of the Electrical Engineering Department in Berkeley in the 1960s, his activities in Education of Engineering and his creation of the theory of Fuzzy sets generated his view on the scientific discipline of Computer science as a fuzzy set. The lecture ends with prospects for possible applications of fuzzy sets in the field of ethics.

## Bio:

Born 1961 in Duisburg, Germany. He obtained his Ph.D. in Philosophy of Science and the German Habilitation in History of science from the Ludwig–Maximilians–University (LMU) in Munich after studies of Mathematics, Physics and Philosophy at the Ruhr-University of Bochum. He was Assistant professor for computer sciences at the University of the Armed Forces in Munich (1988-1995) and for history of sciences at the same university (1995-2002). From 2002 to 2008 he was with the Core unit for Medical Statistics and Informatics at the University of Vienna Medical School/Medical University of Vienna. Since 2005 he is College Lecturer at the Faculty of History and Arts, at the LMU. In 2008 and from 2014 to 2017 he was acting as Professor for the History of science at the Friedrich-Schiller-University Jena and 2009/2010 at the LMU. He was Visiting Researcher (2008-2010) and Adjoint Researcher (2010-2014) at the European Centre for Soft Computing in Mieres (Asturias), Spain and he has been several times Visiting Scholar at the University of California, Berkeley. Since 2004 Chairman of the IFSA Special Interest Group "History" and since 2007, of the EUSFLAT Working Group "Philosophical Foundations". In 2011, he became member of the IEEE Computational Intelligence Society (CIS) History Committee.
He is now with the Research Institute for the History of Science and Technology at the Deutsches Museum in Munich where he leads the research project "IGGI - The Engineering Spirit and Engineers of Mind: A History of AI in the Federal Republic of Germany" which is funded by the German federal ministry of education and research (BMBF).

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| *Date and time:* | *Thursday, May, 11th, 2023, 01:00 pm* |
| *Location:* | *Pérolles 21, room E230, Bd de Pérolles 90, Fribourg* |
| *Contact person:* | *Prof. Edy Portmann* |

*The colloquium is free and open to the public.*