

## ***Thinking Machines. Ramon Llull and the ars combinatoria***

EPFL ArtLab's *Thinking machines. Ramon Llull and the ars combinatoria*, is a bold exhibition that draws together scholarly, scientific and artistic modes of enquiry. It opens on Friday November 2 at 6 pm (opening to the public on Saturday 3), and will run until March 10.

EPFL ArtLab's *Thinking machines. Ramon Llull and the ars combinatoria*, is a bold exhibition that draws together scholarly, scientific and artistic modes of enquiry. Through it, we reread the late Middle Ages in the works of the outstanding Catalan philosopher and theologian, to explore the ramifications of his thinking in the realms of modern and contemporary art and, computation. The reverberations of Lullian thought on technology, art and culture find their present-day corollary in a pedagogical revolution which has 'computational thinking' at its core.

### **New perspectives on technologies**

Organized by the ZKM | Center for Art and Media Karlsruhe, in collaboration with the Centre de Cultura Contemporània de Barcelona (CCCB) and the EPFL, the exhibition proposes fresh perspectives on contemporary technologies and their development through the ages under the influence of both art and science. The exhibition offers a space in which visitors can reflect on the significance of Lullian *combinatorics* for generative and algorithmic principles which are now developed in advanced technologies. *Thinking Machines* likewise raises ethical questions on the accumulation and transfer of knowledge through intelligent systems.

Curated by three internationally acclaimed artists and scholars, Prof. Dr. Amador Vega (Universitat Pompeu Fabra, Barcelona), Prof. Dr. h.c. mult Peter Weibel (ZKM | Karlsruhe) and, Prof. Dr. Siegfried Zielinski (UdK, Berlin University of the Arts), *Thinking Machines* is realized at EPFL under the leadership of ArtLab director Professor Sarah Kenderdine.

### **A "paper computer"**

The Catalan philosopher and theologian Ramon Llull (~ 1232– 1316) distilled and formalized the religious concepts of Judaism, Christianity and Islam, into an *ars combinatoria*, a method for generating core truths by means of a logical algebraic language. Grounded upon the medieval scholastic hypothesis that the world may have a logical structure, Llull attempted to shift the plane of signs and linguistic deductions to that of existence and mechanical argumentation. *Avant la lettre*, he invented a quasi-logical machine, a "paper computer," that could implement combinations of concepts mechanically.

Ramon Llull's investigations and prolific production are of profound relevance for our contemporaneity. The method Llull invented was universal in its aspiration and introduced a modern way of learning that remain pertinent today. He postulated the unity of various methods of generating knowledge, through deduction, argumentation, and dialogue. Llull, not only theoretically and linguistically invented a new technique of knowledge acquisition, like an engineer, he also mechanized it, and translated it into a machine. By combining pertinent historical documents from the archives of

important libraries with modern and contemporary artistic works, the exhibition allows us to situate our current fascination with machines within a rich history of experimentation.

The exhibition brings together manuscripts and rare printed books housed within Swiss libraries, showcasing the richness of national collections, while at the same time displaying for the first time a number of previously-unknown manuscript copies of Lull's texts. These works provide visitors a rare glimpse of the original medium through which the art of combinatorics was recorded and disseminated from the Middle Ages, into the Renaissance, and through to the Enlightenment. Intricate diagrams and layered circles which, when rotated, transform into computational wheels, or paper machines and can be used by readers to generate new combinations of concepts. These designs mirror those of astronomical instruments, such as astrolabes, a number of which, in rare paper format, complete the display.

*Thinking Machines* is further augmented by and showcases the works of younger media artists such as Pe Lang (\*1974), Ralf Baecker (\*1977), Philipp Goldbach (\*1978) and Yunchul Kim (\*1970). In dialog with Lullian thinking, they offer current and deep insights into epistemological questions, which relate to our media environment. In addition, productions by artists such as David Link (\*1971), Perejaume (\*1957), in collaboration with CCCB for the exhibition, engage directly with Lull's ideas, and transpose them into today's social topicality. Bernd Lintermann (\*1967) in the installation YOU:R:CODE, originally conceived for the ZKM | Karlsruhe, examines digital transformations of the self, pivoting of the dualities of "your code" and "you are code" in which genetic code forms the algorithm of life. These works, operating on the basis of immersion and interaction, open novel approaches to Lull, providing visitors new understandings of their own ways of thinking and perception.

**Directed by Professor Sarah Kenderdine, ArtLab EPFL**

**Curators**

Prof. Amador Vega (Université Pompeu Fabra, Barcelone)

Prof. Peter Weibel (Directeur du ZKM | Karlsruhe)

Prof. Siegfried Zielinski (Université des arts de Berlin)

The curators are available for personal interviews on site:

**On Friday, November 2 from 2 pm to 5:30 pm**

**On Saturday, November 3 on request.**

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**Web page:**

<http://thinkingmachines.world>