In his mathematical books and papers, Michael Leyton has developed new foundations to geometry that are directly opposed to the conventional foundations that have existed for almost 3,000 years, from Euclid to modern physics, including Einstein. Whereas the conventional foundations minimize the memory contained in the geometric object, these new foundations maximize it. A fundamental conclusion is that shape is equivalent to memory storage. In this book, Leyton shows that his new foundations for geometry result in new foundations for architecture. Whereas architecture, for thousands of years, has been based on the minimization of memory storage—the aim of conventional geometry—the new architecture he proposes is based on the maximization of memory storage—the aim of the new geometry. He elaborates the structural principles by which buildings can be designed as maximal memory stores. This reformulates the relation of architecture to computation: the computational process becomes one in which the mind undergoes self-creation by reading and writing itself as history. The architectural principles proposed by Leyton are the means by which buildings can be read and written as the self-creation of mind. Leyton illustrates these new architectural principles with his own administration buildings.

Michael Leyton’s mathematical work on shape has been used in over 40 disciplines from quantum mechanics to chemical engineering. His scientific contributions have received major prizes, such as a presidential award and a medal for scientific achievement. His paintings, sculptures, and architectural projects have been featured in international design journals and invited exhibitions. The scores of his string quartets are currently being published. He is president of the International Society for Mathematical and Computational Aesthetics. Professor Leyton is on the faculty of the Center for Discrete Mathematics and Theoretical Computer Science, at Rutgers.