



George W. Hart

George W. Hart is a research professor at Stony Brook University and an interdisciplinary sculptor, mathematician, computer scientist, and educator. His [geometric sculpture](#) is recognized around the world for its mathematical depth and creative use of materials. He is a pioneer in using computer technology and [3D printing](#) in the design and fabrication of sculpture. Examples of his artwork can be seen at major universities, such as [M.I.T.](#), [U.C. Berkeley](#), and [Stony Brook University](#). He has received praise and awards in numerous exhibitions, including a New York State Council for the Arts Individual Artist's Award. He has been invited to lecture and show his art across the country and around the globe, including many major universities. He loves designing sculptures to be assembled by large groups of people, such as [this](#), [this](#), [this](#), [this](#) or [this](#).

Hart's [publications](#) center on mathematical applications in sculpture and other fields. His extensive online [Encyclopedia of Polyhedra](#) provides a substantial reference, which is used by students and researchers around the world. His groundbreaking [Multidimensional Analysis](#) text (Springer Verlag, 1995) gives fresh insight into the structures of linear algebra. His [Zome Geometry](#) book (Key Curriculum Press, 2001) takes the reader on a hands-on tour of the structures possible in three-dimensional space, and is designed to spark students' interest in geometry. He has been in the process of slowly writing a book on [the history of geometry in art](#).

Hart's mathematical research centers on novel polyhedral structures and algorithms for producing them. He has produced algorithms for generating various new classes of polyhedra, which he then presents to the world in sculptural forms. (In past work, he developed methods for efficiently monitoring electrical loads, on which he holds several patents.) He is the associate editor for sculpture of the [Journal of Mathematics and the Arts](#). He is on the board of directors of the [Bridges Organization](#), which runs the *Bridges* conferences on mathematical connections in art, music, and science. He is active in developing [Innovations in Mathematics Education via the Arts](#).

Hart's educational activities reach students at all levels. He has developed many original workshop activities which use art-related ways to engage students in thinking mathematically about patterns, structure, and relationships. These include constructions with [paper](#), [CDs](#), or [other materials](#). He is known for workshops he has led around the world constructing very large models of four-dimensional polytopes (e.g., [1](#), [2](#), [3](#), [4](#), [5](#)). These extraordinary activities expose participants to important conceptual ideas they might never experience otherwise. His online teaching materials have a significant impact on mathematics education and result in an enormous amount of email contact to him from teachers and students around the world. His alternative introductions to mathematical topics are often effective for engaging students who are not attracted to traditional mathematics teaching.

Hart is a co-founder of North America's only [Museum of Mathematics](#). As chief of content, he set the "Math is Cool!" tone of the museum and spent five years designing original exhibits and workshop activities for it.

Hart also designs intricate [geometric puzzles](#) which provide deep challenges to assemble. Some of these are best solved by a group of people working cooperatively. They provide stimulating original exercises in visualization and group communication.

Hart received a B.S. in Mathematics from MIT (1977), an M.A. in Linguistics from Indiana University (1979), and a Ph.D. in Electrical Engineering and Computer Science from MIT (1987). He has worked at the MIT Lincoln Laboratory and MIT Energy Laboratory as a computer scientist. He taught for eight years as a professor at Columbia University, and briefly at Hofstra University. After two years as a visiting scholar associated with the computational geometry group in the Department of Applied Mathematics and Statistics at Stony Brook, he was a research professor in the Department of Computer Science at Stony Brook 2001-2010 and is again starting in 2013. (In between he was off co-founding MoMath.) He is the author of dozens of scholarly articles and conference papers. His web site <http://www.georgehart.com> illustrates the range of his work.

Hart enjoys giving talks and workshops, illustrated with slides and physical models, to audiences ranging from elementary school students to professionals. He has been a visiting lecturer many times at the [Canada/USA MathCamp](#). For places to meet him or see his sculpture, [click here](#). For some press notices, [click here](#). If you like cookies, click [here](#). He has had a minor hand in some videos by his daughter, [Vi Hart](#), and has started making [a series of math videos on YouTube](#) and another series of ["Math Impressions" video essays for the Simons Foundation](#).

In all, George Hart has been kissed by Euclid and enjoys life as a troubadour for geometry, finding creative ways to spread his love for and knowledge of all things that embody a mathematical aesthetic.