

Demaine Receives MacArthur Fellowship

In September 2003 the John D. and Catherine T. MacArthur Foundation named twenty-four new MacArthur Fellows for 2003. Each will receive \$500,000 in “no strings attached” support over the next five years.

Among the fellows is ERIK DEMAINE, an assistant professor of computer science at the Massachusetts Institute of Technology.

Erik Demaine is a young computer scientist who has already established a reputation for tackling and solving difficult problems. Although he actively pursues projects related to many areas of computer science, such as parallel processing architectures and algorithm complexity, Demaine is noted for his research in computational geometry. Recently, he collaborated on a proof of a long-standing conjecture known as the “carpenter’s rule”, which asserts that all closed polygons with non-crossing connections can be made convex (i.e., straightened out, roughly) without breaking or changing the relative length of the connections. This work reflects his broader interest in problems related to folding and bending. Such problems hold implications for both abstract mathematics and practical issues such as manufacturing methods.

Demaine moves readily between the theoretical and the playful, with a keen eye to revealing the former in the latter. For example, he recently demonstrated that a popular computer game, Tetris, represents an example of a computational geometry problem that falls into the “NP-complete” category, implying explosive growth in difficulty with no shortcuts available. Demaine has also invented problems and solutions related to other areas of recreational mathematics (e.g., origami, combinatorial games). Through his eclectic choices for research topics and his prodigious and prolific

output, Demaine has demonstrated an appetite for challenges that cross disciplinary boundaries and a capacity to synthesize ideas from disparate approaches.

Erik Demaine received a B.Sc. (1995) from Dalhousie University and an M.Math. (1996) and Ph.D. (2001) from the University of Waterloo. In 2001 he became an assistant professor in the Department of Electrical Engineering and Computer Science and in the Laboratory for Computer Science at MIT. Demaine has presented more than fifty papers at national and international conferences, published dozens of articles in professional publications, written chapters for five books, and coedited two books. He is currently coauthoring a book, *Folding and Unfolding in Computational Geometry*.

The MacArthur Fellows Program is designed to emphasize the importance of the creative individual in society. Fellows are selected for the originality and creativity of their work and the potential to do more in the future. Candidates are nominated, evaluated, and selected through a rigorous and confidential process. No one may apply for the awards, nor are any interviews conducted with nominees. The MacArthur Fellows Program places no restrictions on how recipients may use the \$500,000, and no reports are required.

The year 2003 is one of particular significance for the John D. and Catherine T. MacArthur Foundation, marking its twenty-fifth year of grant making. As one of the largest private philanthropic foundations in the United States, MacArthur has awarded more than \$3 billion in grants since it began operations in 1978, and today has assets of approximately \$4 billion.

—From MacArthur Foundation news releases