



IN MEMORIAM

James Richard Arvo
Professor of Computer Science
UC Irvine
1956 - 2011

Jim was born in Warren, Michigan, to Helmer and Mathilda (Martin) Arvo and attended Warren High School. He graduated from Michigan Technological University and [Michigan State University](#) with degrees in Mathematics and began doctoral studies in Computer Science at [Yale University](#). He took a hiatus from his graduate work and spent 13 years as a Computer Graphics researcher, first at Apollo Computer and then at Cornell University in Ithaca, NY, where he met his wife, Erin Shaw. They married there in 1994. In 1995, Jim received his PhD from Yale and joined the Computer Science faculty at the California Institute of Technology. In 2002, he joined the faculty of the University of California, Irvine. From 2001-2011, he also worked as a Computer Graphics consultant, first for Pixar Animation Studios in Emeryville, CA, and later for Walt Disney Animation Studios in Burbank, CA.

Jim was a highly regarded and world- renown researcher in computer graphics. His fundamental contributions were primarily in probabilistic monte- carlo approaches to realistic image synthesis. His innovations in this area are widely used in the movie animation industry today. Jim is especially well known for his methods for simulating lighting effects such as caustics created by water and glass when they behave like lenses. He pioneered a method called backwards ray tracing which he named and popularized with his work. Jim set very high standards for himself, and was well known for the quality of his scholarship as well as his work ethic. He placed a high premium on both mathematical rigor and intellectual honesty and these values came through in every aspect of his work. Jim was widely consulted by his fellow researchers on monte- carlo simulations and realistic image synthesis, not only because of his deep knowledge of the area, but also because of his gentle and approachable manner.

Jim was a life- long atheist who enjoyed debating theology and evolution. He had very elegant ways of putting forward his ideas on the great variety of subjects which interested him. This clarity of expression made him a favorite teacher among students. In his course evaluations, students praised his ability to make difficult and abstract material accessible as well as the fact that he was so dedicated to their success. His passion for education was recognized by teaching awards at both Caltech and UCI. At the time of his death he was working on a textbook on Automata Theory.

Jim's greatest pleasure was spending time with his beloved son, Julian, 11. They enjoyed trading riddles, playing board games, watching movies, juggling, playing catch and basketball, and working together in the garage that Jim enjoyed remodeling himself. Jim was a constant fixture at Julian's sports games. He was an avid tennis and squash player and began long- distance running when he was 42. He completed five Los Angeles marathons.

Jim is survived by his wife, Erin Shaw, and son, Julian James Arvo, his two sisters, Carol P. Brown and

Nancy Rudnik (William); and his nieces, nephews and many cousins. He was preceded in death by his parents, Helmer and Mathilda (Martin) Arvo. Jim was also deeply affected by the loss of his close collaborator and friend of over two decades, Kevin Novins, to cancer earlier in 2011.

Jim will be greatly missed at UCI as well as among his many colleagues and friends in computer graphics.

Sandy Irani and Gopi Meenakshisundaram
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