Training Software in Artificial-Intelligence Computing Techniques

The Artificial Intelligence (AI) Toolkit is a computer program for training scientists, engineers, and university students in three soft-computing techniques (fuzzy logic, neural networks, and genetic algorithms) used in artificial-intelligence applications. The program promotes an easily understandable tutorial interface, including an interactive graphical component through which the user can gain hands-on experience in soft-computing techniques applied to realistic example problems. The tutorial provides step-by-step instructions on the workings of soft-computing technology, whereas the hands-on examples allow interaction and reinforcement of the techniques explained throughout the tutorial. In the fuzzy-logic example, a user can interact with a robot and an obstacle course to verify how fuzzy logic is used to command a rover traverse from an arbitrary start to the goal location. For the genetic algorithm example, the problem is to determine the minimum-length path for visiting a user-chosen set of planets in the solar system. For the neural-network example, the problem is to decide, on the basis of input data on physical characteristics, whether a person is a man, woman, or child. The AI Toolkit is compatible with the Windows 95, 98, ME, NT 4.0, 2000, and XP operating systems. A computer having a processor speed of at least 300 MHz, and random-access memory of at least 56MB is recommended for optimal performance. The program can be run on a slower computer having less memory, but some functions may not be executed properly. This program was written by Ayanna Howard, Eric Rogstad, and Eugene Chalfant of Caltech for NASA’s Jet Propulsion Laboratory. Further information is contained in a TSP (see page 1).

Three-Dimensional Audio Client Library

The Three-Dimensional Audio Client Library (3DAudio library) is a group of software routines written to facilitate development of both stand-alone (audio only) and immersive virtual-reality application pro-