ROBO-SOFTWARE REPORTS FOR DUTY

Robots have long captured man's imagination as tireless, eternally loyal servants. But even today, with many factories having grown robotic, few people have ever seen a true robot, much less owned one that they could boss around.

All that may change now, as a new kind of robot starts prowling the digital highways and byways of cyberspace. It's what computer scientists call an "agent"—a kind of software program that's powerful and autonomous enough to do what all good robots should: help the harried humans by carrying out tedious, time-consuming, and complex tasks. Software agents just now emerging from the research labs can scan a bank's data base for loan defaults, coordinate meetings, tidy up electronic in-boxes, and handle a growing list of clerical jobs. In the next couple of years, experts predict, agents will be available from all the major software companies and quite a few startups as well.

Supernetwork survival. At Hewlett-Packard Co., an agent supplied by Edify Corp. is already helping automate a quarterly wage-review process that covers approximately 13,000 salespeople.

Edify's software, running on a PC, performs essentially the same tasks that a team of 20 administrators has been doing by hand. First, the agent program dials into the HP personnel system and gets a list of who works for each of 1,200 sales managers nationwide. The agent then electronically mails each manager a list for his verification. It collects any changes by e-mail and enters them back into the personnel system—exactly as if a human were working at a terminal.

Now, the agent repeats the entire process, but this time it includes proposed salary changes supplied by management for each employee. Managers can approve the changes or alter them simply by phoning the PC and keying in new data in response to the Edify agent's synthesized voice prompts.

An entire menagerie of software agents is starting to debut—some sophisticated, some simple, some quite visible, others programmed to work strictly behind the scenes. Ideally, they will mimic just what an intelligent human would do, except with greater stamina and accuracy. This might be the only way that mere mortals will be able to cope with the widely hailed Information Superhighway and its cornucopia of services and machine-generated messages demanding immediate attention.

The Windows-icon-mouse interface that Alan Kay and other computer scientists developed at Xerox Corp. in the 1970s isn't keeping up with the complexity of networks. Unassisted, people can keep track of only so many graphical icons, for instance. "You'll be connected to millions or billions of different resources," predicts Kay, now a research fellow at Apple Computer Inc. "One of the biggest problems is to find information. We don't believe you can browse for it. To find what you need, he says, the computer "has to be flexible enough to take on many of your goals. You either tell it or teach it what you're interested in, and dispatch agents. The agents will find things and screen them."

Some "agents," such as Wozane, appear as cartoon figures. Others, such as WordChampion and WordRace, are simpler and more limited. WordChampion, for example, is an agent that can assist people in learning new words. It can help users remember new words by either asking them questions or by presenting them random words to memorize. WordRace is another agent that can help people learn new words by playing a game of word races with them. The agent randomly selects words from a list and asks the user to type as many words as possible in a certain amount of time. The agent keeps track of the user's performance and provides feedback on their progress. The agent can be set to different levels of difficulty, allowing users to challenge themselves as they improve their word knowledge. The interface is designed to be intuitive and user-friendly, with clear and concise instructions and feedback. The agent's responses are tailored to the user's performance, providing encouragement and motivation as they progress. Overall, the agent is a useful tool for anyone looking to expand their vocabulary and improve their language skills.