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## Computer more than super pencil, Design Machine Group says

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News & Information

They sound like games: Digital Sandbox, Mouse Haus, Electronic Cocktail Napkin, Navigation Blocks, Space Pen.

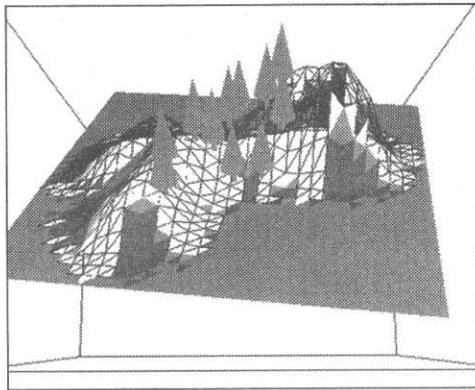
But despite those fanciful names, they are not for kids — they are tools invented by the UW's 18-month-old Design Machine Group to unleash architects' and designers' collaboration and creativity.

The young, freewheeling idea factory, part of the College of Architecture and Urban Planning, is making a splash in the academic world and will go public with a Nov. 5 presentation at the Seattle Art Museum.

"Until now, architects have used the computer to replace the pencil and drawing board," said Design Machine Group director Mark Gross, an associate professor of architecture. "But the computer is really a knowledge tool, an information-processing tool. That's what we're trying to unleash."

If that is not instantly grasped, a visitor can start by just admiring the cool factor. Toiling in the basement of one of the UW's oldest buildings, Architecture Hall, students and researchers appear intently focused on what looks like play. One graduate student is lining up wooden blocks that are studded with microprocessors and magnets. Another is wiggling his fingers in a glove whose every gesture is monitored by a computer.

A young Frenchman named Thomas Jung is making slashes with the Space Pen, sketching a rough rectangle onto the realistic image of a wall. The computer



DESIGN MACHINE GROUP IMAGE

*With Digital Sandbox software created by the Design Machine Group, architects can create a 3D display like the one above. The software helps the designer sculpt specific land-forming tasks that mirror real-world issues.*

recognizes the shape, smoothes out Jung's lines and, a few clicks later, adorns the virtual room with a new window. The Space Pen can then post this 3-D feature — or any other changes or comments emanating from anywhere in the world — onto the Internet, enabling the room's designer to gain from others' ideas.

"When I was working in an architectural firm," Jung said, "the main way to share documents was by fax. This is a whole lot better."

Space Pen is just one of the 12 Design Machine Group projects to be demonstrated Nov. 5 at the Seattle Art Museum's

Lecture Hall from 6:30 to 8 p.m. The free event is co-sponsored by Space City, Seattle's art and architecture forum.

Art lovers will find plenty to stimulate both their senses and minds. Indeed, Design Machine Group is part of the UW's ambitious new Center for Digital Arts, an interdisciplinary effort, funded by the University Initiatives Fund, to redefine art, music, theater, film and architecture.

Up to now, Design Machine Group has perhaps been better known abroad than in the Pacific Northwest. The UW group made a splash over the summer when it pumped out seven of the 55 papers presented at the international Computer Aided Architectural Design Futures conference in Eindhoven, Netherlands.

"Our contributions made it clear that the UW is rapidly emerging as an international center for design computing in architecture," said Ellen Yi-Luen Do, assistant UW professor of architecture and Design Machine Group co-director.

Meanwhile, the group is just beginning to tap the commercial and practical potential of its software and hardware inventions.

Design Machine Group is adding its touch, for example, to UrbanSim, an interdisciplinary, federally funded UW project to try to forecast future transportation, environmental and other urban conditions through the processing of massive amounts of real-world data (see story, Page 1). Gross and his colleagues will try to embed within UrbanSim a human-computer interface that enables ordinary citizens, as well as planners, to sketch "what if" questions on maps — for example, what if the transit line went over here? — and get an answer in clear visual form.

Meanwhile, assistant professor Brian Johnson, the group's other co-director, is developing Compadres, a system that extends onto the Web what he calls the "informal learning space" that exists in a traditional design studio — a way to offer via the Internet an equivalent of the overheard, peripheral conversations that spur new thinking.

"Most schools of architecture," Gross said, "teach students how to use the tools of the trade. But architects must also be inventors of the tools and techniques we employ — not merely consumers. We're one of a very small handful of architecture schools that have research groups that actively focus on these questions."

The Web site is <http://depts.washington.edu/dmachine>.

### Design Machine Group projects

■ **Digital Sandbox.** Physical sandboxes are great for understanding how earth behaves. This virtual equivalent gives landscape architects a powerful and intuitive way to understand how land reacts to such things as storm waters.

■ **Mouse Haus.** Based on observations of actual pedestrian activity in an urban space, the Mouse Haus provides a simulated world in which pseudo-pedestrians move about. This could help an architect visualize and design better urban spaces.

■ **Sketch VR.** To create an architectural space, you draw lines and circles in a simple "cocktail napkin" sketch. The 3D world is created accordingly.

■ **Navigation Blocks.** An alternative to the standard information kiosk. Instead of touching menu bars on a computer screen, tourists at a historic site, for example, could manipulate physical blocks that show the relationships between dates, people and events. When the dates and events a visitor chooses don't match up, embedded magnets push the blocks apart. When they do match up, a video display comes to life.