Urban renewal, the wireless way
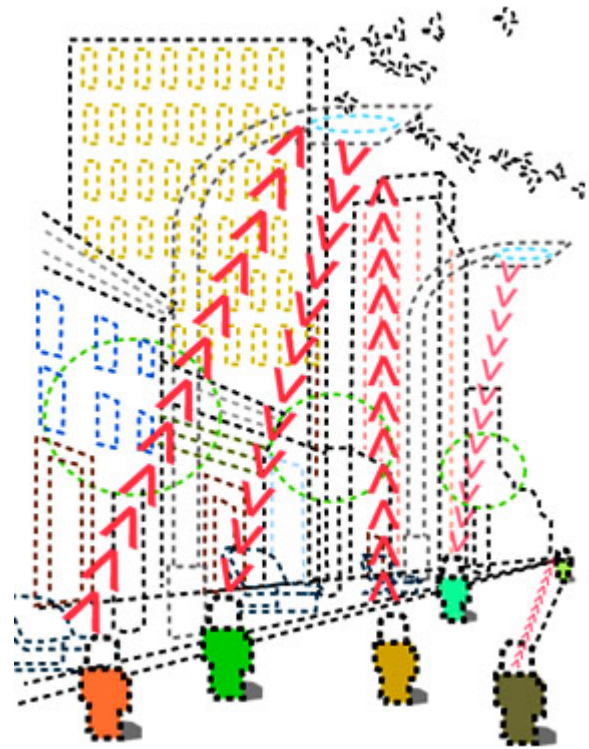
Thanks to Wi-Fi networks, cellphones and global positioning locators, there's a new sense of place in the city.

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By Linda Baker

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Nov. 29, 2004 | In November 2003, New Yorker architecture critic Paul Goldberger penned a diatribe in Metropolis magazine against the isolation and dissolution of *place* wrought by the pervasive use of cellphones on city streets. "The mobile phone renders a public place less public," he wrote. "It turns the boulevardier into a sequestered individual, the flâneur into a figure of privacy. And suddenly the meaning of the street as a public place has been hugely diminished."

Goldberger's critique of mobile communications technology capped over a decade of analysis revolving around the ability of global communications networks -- for better and for worse -- to release people from the constraints of time and place. "The post-information age will remove the limitations of geography," wrote Nicholas Negroponte in "Being Digital." "Digital living will depend less and less on being in a specific place at a specific time." In "Pandemonium," Lars Lerup, dean of the architecture school at Rice University, proclaimed: "The bandwidth has replaced the boulevard."

Actually, it didn't. Virtual reality as a substitute for reality? That kind of thinking is, well, so very yesterday. With a new generation of wireless devices, GPS (global positioning system) locators and ubiquitous networking, future gazers claim, digital space will simply add another dimension to physical space, especially as technology continues to penetrate what sociologist Ray Oldenberg has famously described as "third places": the communal public spaces where people interact with friends or strangers.

So-called "urban computing" means much more than bringing your Centrino laptop to Starbucks and logging on to Amazon.com. Instead, cutting-edge mobile and wireless services emphasize proximity over connectivity, the local over the global and the here and now rather than anytime, anywhere. Computer geeks suddenly turned urban theorists, many of today's technologists harbor even loftier goals for mobile research agendas: to

enhance the image of the city itself -- the patterns, the complexities and, above all, the sheer serendipity of the urban landscape.

"People talk about mobile computing as now you'll be able to leave your home and go to a cafe or park and maybe go online and check e-mail," says Eric Paulos, lead researcher at Intel's Urban Atmospheres project in Berkeley, Calif., a program designed to explore technology's potential to augment and enhance the urban experience. "But we're interested in something much bigger than that. We're interested in the social cues that people already perform in urban spaces, in the artifacts that already exist, like trash cans, park benches, and how they will be mapped or reappropriated into a playful network of digital life on the streets."

Call it the "new new urbanism," a fusion of telecommunications technology and urban design that is at once a 21st century zeitgeist and a familiar riff on the age-old interface between cities and technology. "From an urban design perspective, a lot of technologists are just discovering public space," says Dennis Frenchman, chairman of the master of city planning program at the Massachusetts Institute of Technology. "It's an old story that goes back hundreds of years." A consultant on Seoul's Digital Media City, Frenchman himself is part of a very new story. The DMC will incorporate all-digital signage, with programming capacity accessible to the public, personal positioning services, intelligent street lamps and transparent storefronts that will reveal a building's inner uses as well as real-time Web feeds from sister cities.

The overall purpose of the DMC design, Frenchman says, is to infuse life on the street with multiple layers of meaning. "We're in a transitional moment," he hastens to add. "Huge kinds of things are happening."

To use the Wi-Fi location-based vernacular, several factors triangulate the growing relationship between urban design and computer science. First, having taken over the home and the office, the technology industry has little virgin territory to conquer except the public realm. Second, until recently, there wasn't the technological capacity to do much computing on city streets and sidewalks -- the devices were too big and the network applications not big enough. Third, it turns out that virtual reality, when it comes right down to it, just can't compete with the immediacy and sentience of real-time, real-place encounters.

In the 1980s, technologists and urban planners began to look at virtual communities as a new form of urbanism, says Anthony Townsend, a research scientist at NYU who teaches in both the urban planning and the telecommunications departments. "But they very quickly realized that it wasn't that interesting," he says. "There are some indirect linkages between the desktop web and what goes on every day in urban spaces, but not really very tight linkages." Today, he says, the proliferation of wireless technologies has led to more direct interactions between cities and networked spaces. "What's happening now is that technology and industry are adapting to us," Townsend said. "Instead of us becoming global beings, technology is reorienting around the way we are: visual, local, tactile."

In an article written last spring for the architecture journal Praxis, Townsend offers a primer on new digital technologies, categorizing them according to four different functional applications: mobile communications, positioning services, digital displays and urban documentation. Deployed in urban spaces, these technologies ultimately sort themselves out according to long-standing debates about the nature of people, place and community. Ask today's tech researchers about the next big thing, and instead of obscure lectures on the radio frequency spectrum you'll hear invocations to '60s situationist concepts of "derive" -- urban flows -- or the neotraditional ideas of Jane Jacobs, whose seminal work, "The Death and Life of Great American Cities," focused on the dense, diverse and random encounters that support thriving urban neighborhoods.

"I'll tell you the truth of the matter -- it ain't rocket science to figure out how to do this," drawls Scott Shamp, director of the New Media Institute at the University of Georgia, which set up a Wireless Athens Georgia (WAG) zone last summer covering all 24 blocks of Athens and the university campus. The project catalyzed NMI's Mobile Multimedia Consortium, a cooperative effort involving students, faculty and consultants along with five private industry partners: Intel ExecuTrain, XcelleNet, Air2Web and Hewlett-Packard.

Since the WAG zone -- also known as the Cloud at Athens -- launched last June, says Shamp, he's been getting calls from people all over the world who want to set up similar networks. "People said: 'We want to know what access points you're using, what protocols you're using; tell me how you're mounting them on the poles,'" says Shamp. "But what was most important was not that they understood the technology, but that we turned it into something that enhanced the community."

Registered users take advantage of the Cloud's interactive software to outline preferences regarding specific businesses; then in downtown Athens, they can receive information -- via PDAs, laptops and cellular phones -- about bands, menu specials or discounts at various stores. So far, the Cloud sounds like just another vehicle for advertising, but the goal, Shamp emphasizes, is to invigorate a local business economy by providing community content and applications. "Otherwise," he says. "you can easily make an argument that somebody goes into downtown Athens, gets out that laptop, goes to Amazon to buy that book instead of walking two blocks and buying that book from a local bookstore."

Like a street or a building, WAG zone access points actually inhabit part of the physical infrastructure, orienting the Cloud user to specific resources within the community. "A huge part of this is connecting up the information with the location and making it place-and-time relevant," Shamp said. "To experience it, you actually have to be in downtown Athens." Another site-specific application -- customized for the social life of a student -- is Friend Finder, a Cloud service designed by University of Georgia art, business and music students. "I can come into downtown Athens with a PDA, send a text message that I'm going to be in Blue Sky Coffee for two hours, then turn it off and put it in my pocket," explains Shamp. "Then when one of my buddies comes into downtown, he can use the WAG zone to find out where his friends are."

Global positioning systems embedded in mobile devices add yet another spatial dimension to virtual technologies. As Townsend points out, in cellphone-packing Tokyo, GPS chips are already embedded in most mobile devices, creating hordes of "smart mobs" who navigate the densely built -- and inhabited -- city through use of custom maps and buddy-finder applications. More recently, researchers at Intel's Seattle lab have developed a Wi-Fi positioning system called Place Lab that doesn't require extra hardware to install in mobile devices.

"As computing moves off the desktop into the environment, you and I are going to own a large number of computationally enabled devices," says Anthony LaMarca, a Place Lab researcher. That's going to require a qualitative shift in how we interact with technology. "It's not going to be that every computationally enabled device is going to be able to command your attention," he says. "The devices you own and encounter in densely populated urban environments are going to have to make decisions on their own. For that to happen, the devices need context. And for a mobile device, location is one of the key pieces of context."

Hewlett-Packard's Urban Tapestries project in Bristol, U.K., takes finder and navigator functions to yet another level: leveraging Wi-Fi-enabled networks to allow users to digitally tag real locations with text and images. Thus you can wave your mobile phone at a tagged restaurant to pick up reviews left by previous clients, or download digital audio tours as you wend your way through a museum. Other labs are developing "smart place" services based on detection of embedded radio frequency identification (RFID) tags. Then there's the inverse of location-based services, otherwise known as "computer enhanced location" technologies. At the 2003 UbiComp conference, former Intel researcher Joe McCarthy debuted three "place augmented" prototypes based on scanning and displaying digital profiles -- with information about personal and professional interests -- contained in wearable RFID tags.

"We are just beginning to scratch the surface of this," says McCarthy, who left Intel last month to launch his own company, Interrelativity. "You can imagine scenarios where this is used at work, especially in large organizations with a lot of nameless faces. It gives people something to talk about and recognize that they have more in common than they thought. It also has a lot of potential for coffeehouses and other so-called third places."

If the 21st century digital city raises serious questions about surveillance and information overload, the flip side is that mobile technologies put more eyes and feet on the street, a benchmark for success in any urban place. In fact, one of the paradoxes of digitized urban space is its apparent affinity for traditional urban and neighborhood aesthetics -- not the soulless supermalls and virtual suburbs one might expect. The design of Seoul's Digital Media City, for example, reflects an earlier era of narrow streets, dense alleyways and pedestrian plazas. Or consider the Intel People and Practices lab in Hillsboro, Ore., where researcher Michele Chang has designed a hybrid street game -- with real and virtual components -- steeped in nostalgia for old-fashioned street play such as hopscotch, kick the can and stickball.

"Street games, this really rich city practice, have all but disappeared," she says. "It's because cities have become more regimented, anonymous and commercialized." If some might blame computer games for taking kids off the streets, Chang wants to leverage digital spaces to counter what she calls the prevalence of "heads-down computing." Intended as a research tool to map urban practices, her digital street game assigns players random combinations of objects, practices and places to document stunts on the streets of New York. "The idea is very much technology is the medium and the city is the canvas," she explains. "The street game is a platform for creativity that randomly sets out different ways of discovering your city."

The neotraditional bent of the postmodern city perhaps explains the attraction of wireless technologies for more conventional urbanists working to mitigate the problem of place in American life. "Anything that's networked tends to work better where there are lots and lots of people," says John Norquist, former mayor of Milwaukee and president of the Congress for the New Urbanism, an organization that supports walkable neighborhoods and high-density, mixed-use development. "So Wi-Fi supports urbanism; it's one of the technologies that enhances it, unlike the interstate highway system that undermines the density of cities."

Wireless zones, says Ethan Kent, a program manager at New York's Project for Public Spaces, give people a reason to use public space "in an era when there are more reasons to be in our houses, offices and cars." Pointing to light-emitting-diode displays in Times Square -- in particular a Reuters sign that offers live news and photo feeds -- Kent said digital display technologies that reveal a building's inner uses offer the greatest potential for enlivening public spaces.

Ultimately, the reaction of the urban design and planning community to telecommunications trends raises the question: Who is the driving force behind the 21st century digital city? The correct answer is not the Project for Public Spaces -- or any planning organization, for that matter. Think of it this way, says Townsend. "Intel is the General Motors of the 21st century. It's very influential."

Backed by the big bucks, technology researchers are devouring tomes related to the theory of place. For their part, (underfunded) planners have yet to develop a comprehensive approach to emerging mobile and wireless technologies. An embryonic field, technology planning usually focuses on building an infrastructure network -- such as expanding municipal Wi-Fi zones -- or responding to citizen concerns about cellphone towers and radiation, says Scott Page, a Philadelphia urban planner who recently launched his own company, Interface Studio. "It's unfortunate that the planning profession has turned more of a blind eye to the potential of emerging technologies than they could have," he says. Urban telecommunications strategy needs to do more than plan for "lead users," he says. "You want to be feasible, not utopian, not just throw out a bunch of ideas and hope that everyone is going to own a cellphone in five years," he says, "because that's not going to be the case."

In conjunction with a local nonprofit, Page recently completed a comprehensive technology strategy for a distressed neighborhood in northern Philadelphia, including a community technology center where Temple University faculty will teach kids GIS (geographic information system) skills to build a database for the neighborhood, and public art that will double as a digital bulletin board accessible from a public place. "Technology becomes a visible part of a community's revitalization, and you get exposure to people who have never had exposure," he says.

In January 2005, MIT's Sensible Cities Lab and Center for Real Estate are hosting a digital city symposium bringing together real estate companies, tech companies, urban planners and designers, and cities that partner with tech companies. At the September 2004 UbiComp conference held in Nottingham, England, Intel's Eric Paulos co-organized an Urban Frontiers Workshop that brought together technologists, urban designers, geographers and architects to examine the ways mobile and wireless computing will be integrated into the urban landscape.

Perhaps more than any other project, the Urban Frontiers Workshop suggests that trends within the digital city movement mirror long-standing distinctions in the urban planning community: between those who view cities as compartmentalized centers of production and efficiency, and those who view urban spaces as a kind of barely organized chaos, favoring unpredictable encounters between diverse social groups. Thus on one side you have the Place Labs and the Friend Finder applications; on the other you have the street games and what Paulos calls "urban probes." These include a digitally augmented garbage can he designed to capture the pattern, flow and personal stories connected to trash usage and a "familiar strangers" project, a mobile phone application that logs and records the presence of people we see every day -- at the bus stop, in the grocery store -- but with whom we do not interact.

"Probably the big thing was try to bring the discussion away from the immediacy of things that promote efficiency or productivity," says Paulos, who cites influences such as the situationists, who staged unpredictable street performances, and Kevin Lynch, whose seminal planning book, "The Image of the City," exposed the difference between people's mental maps of a city and the physical plan. "Even though these are important goals, it's important to acknowledge that things we actually cherish in life in home or the city are not always about efficiency. They are intangible; they get at emotional experiences. It's what constitutes the richness of people's lives."

Toggled together, the pragmatic and playful digital city applications will change both the shape and the experience of public space. As for value judgments, it is too early to say. If the cellphone, as Goldberger and many others complain, is a technology that isolates people on the street, it is also a tool to engineer face-to-face encounters. If a pervasive silicon-embedded environment suggests an Orwellian politics of place, it also points toward a democratization of technology, an era in which individuals and communities control their digital future.

Townsend tells a story of being in Seoul during the Summer Olympics, where 500,000 people would gather to watch soccer on a four-story Jumbotron on top of a building. "It's a shared event, a shared sense of space," says Townsend, "where people choose to make a statement by being in large group."

"Emerging technologies are an enabler," says Page. "They can reinforce anything we want to accomplish." Besides, he adds, "it's traditional that cities change and adapt to technology. It's what cities are partially there for."