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## Gamers turn cities into a battleground

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Matt has been abandoned on Tower Bridge, London, with nothing except his clothes and a mobile phone. A woman dressed in black walks past, and Matt receives a text message to follow her. He doesn't know who she is, or where she is going. All he knows is that he must follow her if he is to find Uncle Roy.

Matt is playing *Uncle Roy All Around You*, where for one day he is the main character in an elaborate experimental fantasy game played out across the streets of London. He also happens to be a pioneer of a new social phenomenon, urban gaming. If you thought the computer games of the 21st century are only ever played by couch potatoes addicted to the new generation of Xbox, Nintendo or PlayStation consoles, you'd be mistaken. For urban gamers are harnessing the power of global positioning systems (GPS), high-resolution screens and cameras and the latest mobile phones to play games across our towns and cities, where they become spies, vampire slayers, celebrities and even Pac-Man.

Urban gaming started in the 1990s with the advent of "geocaching", where GPS is used to pinpoint exact locations. Players buried "treasure" then posted the longitude and latitude coordinates online, allowing others to hunt for the prize. Such treasure hunts have become extremely popular and are played by hundreds of thousands of people worldwide, with prizes buried in ever more exotic locations, even underwater.

"The limitations of physical space makes playing the game exciting," says Michele Chang, a technology ethnographer with Intel in Portland, Oregon. There is also a social element, says Chang. Last year, as a social experiment to see how people behave with real-world games, she created *Digital Street Game*, which ran for six months in New York. The aim was to acquire territory by performing stunts dictated by the game at public locations around the city, such as playing hopscotch at a crossroads while holding a hot-dog. "People are more reserved than you would imagine," says Chang. Some players took to performing their stunt on rooftops to avoid being seen, she says, while others relished being ostentatious - like players of *Pac-Manhattan*, in which New Yorkers dress up as the video game icon Pac-Man and flee other gamers dressed up as ghosts.

While many of the first real-world games involved using separate GPS receivers and handheld computers, mobile phones and PDAs that integrate such technology are catching up. "There's an evolution using the mobility of the phone to create completely new gaming experiences," says Tom Söderlund, who worked as a games producer for Swedish games company It's Alive, based in Stockholm. "I think we are going to see more and more games that blend with our real lives."

*Uncle Roy All Around You* is one such game, developed by interactive technology researcher Steve Benford at the University of Nottingham, UK, as part of a European effort called the Integrated Project on Pervasive Gaming, or iPerG. Matt has just an hour to find the eponymous Uncle Roy by following instructions or clues fed to him via cellphone text messages. But every time he moves, the positioning technology on his phone transmits his exact location onto a virtual map of London, allowing other players in the game to track his movements and hunt him down. Meanwhile a small band of performance artists called Blast Theory shadow Matt like spies, interacting and manipulating him in his quest to find Uncle Roy.

Another phone-based game is a variant of the classic arcade game *Tron*. Two or more players, who may never have met, speed through a city leaving a virtual trail behind them that is plotted on their mobile phone screens. There is one rule: you can't cross your own trail or that of the other player, so the basic tactic is to try and encompass or corral your opponent, forcing him or her to cross a trail and lose the game. *Pac-Manhattan* players use PDAs incorporating GPS to work out each other's whereabouts.

Soon you may even be able to play games using phones without GPS hardware. One being played by 30,000 people in Sweden, Russia, Ireland, Finland and now China is called *BotFighters*. Produced by It's Alive, *BotFighters* is a variant on *Dungeons & Dragons* role-playing games in which players explore an arena - in this case a city. Stumble into another player's territory, and you have to fight them by exchanging virtual blows boosted by acquired superpowers. Each blow is sent via a text message. The game exploits the location-based services provided by cellphone companies, where the position of each phone is tracked by its network. As location-based services become ever more sophisticated and accurate, so will the games.

## Treasure hunts

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But not all real-world games use positioning technology. Simon Woodside, a graduate from the University of Waterloo in Ontario, Canada, has started a company that runs treasure hunts for fund-raising events or team-building exercises. In Woodside's games, players hunt for clues in the form of coded signs called Semacodes hidden in the landscape. These grids of black and white dots work like bar codes but can store more information. Software developed by Woodside transforms the digital camera in a player's phone into a Semacode reader, allowing the phone to decode the information. This can either be a clue to another destination or act as a progress marker by proving the player has been in a certain location.