

Motion-sensing phones that predict your every move

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Editorial: *The spy in your pocket - who's in control?*

COULD your cellphone learn to predict what you are going to do before you've even started doing it?

Communications engineer [Arjen Peddemors](#) thinks so, and along with colleagues at the Technical University of Delft in the Netherlands he has devised a system that learns users' behaviour patterns to provide them with an enhanced cellphone service. It could, for example, prevent the phone starting large downloads such as music tracks or podcasts when your behaviour suggests you are about to go out of network range.

Such prediction has become possible because smartphones like the Nokia N97 and Apple iPhone contain accelerometers that sense motion. They are normally used to reorient images when the screen is flipped from vertical to horizontal, or by software that responds to a shake of the phone. But Peddemors realised that they also generate a data stream that reflects every move the phone's owner makes.

Routine events such as going to work are likely always to involve similar sequences of actions: locking the front door, opening the garage, getting in the car, for instance. The Delft system uses telltale sequences and timings like this to create an electronic signature of particular events.

A neural network software app running on the phone is then trained to predict what happens next and act accordingly. So if your regular drive to work takes you through a particular phone cell, the "going to work" signature could trigger the software to negotiate with the cellphone network to ensure that the cell will have the 3G capacity to maintain your streaming music channel as you drive through it.

Peddemors says his team's idea of predicting these "mobility events" (*Pervasive and Mobile Computing*, DOI: 10.1016/j.pmcj.2009.11.001) could prove especially useful in situations when safeguarding against loss of data is critical, such as in the emerging field of cellphone transmission of vital physiological data from heart-rate and blood-pressure sensors. "By predicting the patient's movements, the upload of that critical data won't be attempted unless their behaviour says it can be completed," he says.

The upload of critical data won't be attempted unless your behaviour says it can be completed

The system "makes possible an interesting set of applications", says Ian Brown, a privacy and security specialist at the Oxford Internet Institute in the UK. "But to ensure the user benefits from them - and not, say, behavioural advertisers or law-enforcement personnel - the data needs to stay firmly under the control of the individual using it."

<http://www.newscientist.com/article/mg20427385.900-motionsensing-phones-that-predict-your-every-move.html>