

*Increasing Control over
Cloud and Mobile Data*

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Modern technology is both a blessing and a curse. While mobile devices and web services can deliver quick access to information and even quicker connection to other people, there is a downside: the loss of control over our data.

Consider the trouble likely to occur if your laptop is stolen: you have no way to erase the sensitive data stored on it, you cannot prevent a thief from accessing that data, and you cannot identify potentially compromised data. Or, consider that you cannot be totally certain that photos, email, or documents you try to erase from online services—like Facebook, Hotmail, or Google documents—are not maintained by these web services long after you have requested they be deleted.

To regain confidence in the privacy and security of personal data, new technology applications need to manage sensitive data rigorously and provide users with strong controls over its ownership, distribution, and properties.

Roxana Geambasu works to identify the security risks inherent in today's mobile and web technology and designs, and she constructs and evaluates systems that address those problems. She designed Keypad, a system that guarantees remote control and auditability for data stored on a stolen device; Vanish, a self-destructing data system that provides control over the lifetime of data stored in untrusted web services; Comet, a system that lets users customize the way data is managed in a storage cloud; and Menagerie, a system that offers a uniform view of a user's scattered web data.

Her interests span broad areas of systems research, including cloud and mobile computing, operating systems, and databases, all with a focus on security and privacy. She integrates cryptography, distributed systems, database principles, and operating systems techniques and advocates a collaborative approach to developing cross-field ideas in order to solve today's data privacy issues.

In 2009, she was the recipient of the first Google Fellowship in Cloud Computing. Her current research focuses on an operating system redesign for mobile devices. She has identified that the principle mechanisms, assumptions, and interfaces of mobile device operating systems have not evolved to match the unique characteristics and workloads they are meant to handle.

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Photo: Bruce Hemingway

