

## ACM XRDS: Zero-Knowledge Proofs

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The Fall 2013 issue of [XRDS: Crossroads](http://xrds.acm.org), the ACM magazine for students is about [the complexities of privacy and anonymity](http://dl.acm.org/citation.cfm?id=2517249&dl=ACM&coll=DL&CFID=442640581&CFTOKEN=69531558).

The issue is motivated by the current research problems and recent societal concerns about digital privacy. When real and digital worlds collide things can get messy. Complicated problems surrounding privacy and anonymity arise as our interconnected world evolves technically, culturally, and politically. But what do we mean by privacy? By anonymity? Inside this issue there are contributions from lawyers, researchers, computer scientists, policy makers, and industry heavyweights all of whom try to answer the tough questions surrounding privacy, anonymity, and security. From cryptocurrencies to differential privacy, the issue looks at how technology is used to protect our digital selves, and how that same technology can expose our vulnerabilities causing lasting, real-world effects. [Check it out!](http://dl.acm.org/citation.cfm?id=2517249)

Department that I'm responsible for contributed a column on zero-knowledge proofs. ♦ A zero-knowledge proof allows one person to convince another person of some statement without revealing any information about the proof other than the fact that the statement is indeed true. Zero-knowledge proofs are of practical and theoretical interests in cryptography and mathematics. They achieve a seemingly contradictory goal of proving a statement without revealing it. In the column we describe the interactive proof systems and some implications that zero-knowledge proofs have on the complexity theory. We conclude with an application of zero-knowledge proofs in cryptography, the Fiat-Shamir identification protocol, which is the basis of current zero-knowledge entity authentication schemes. [Check it out!](http://dl.acm.org/citation.cfm?id=2517249.2517258&coll=portal&dl=ACM)