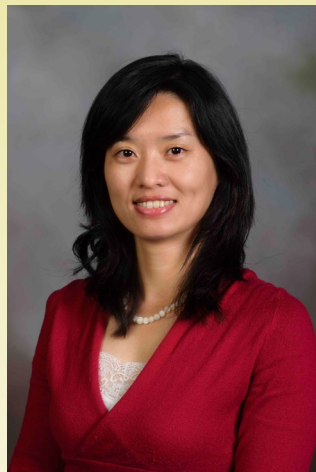


Research Project Spotlight

Fast and Privacy-Preserving Screening of Massive Data for Leaks

Danfeng 'Daphne' Yao, Virginia Tech

Protecting the confidentiality of sensitive customer data is one of the security goals of all modern businesses. Unfortunately, there are numerous ways for data to be leaked out of organization boundaries -- accidental email forwarding, forgetting to encrypt, and software flaws, just to name a few. For the past three years, Danfeng (Daphne) Yao, now an associate professor, has been leading a team of dedicated Ph.D. students, Xiaokui Shu and Fang Liu, to tackle this problem at Virginia Tech. Their approach is to design intelligent algorithms that are capable of screening massive amount of content for signs of sensitive patterns. One advantage of their detection is privacy preservation. Privacy preservation means that the detection of data leak can be performed without revealing the



sensitive patterns. This feature is quite significant, in that it enables brand new security services, including data-leak detection as a service, outsourced data leak detection, and data-leak detection in the cloud. Some of the work was in collaboration with Professor Elisa Bertino at Purdue University.

Daphne's group recently received additional funding from Ontario Systems through S²ERC to further evaluate the scalability of their Map Reduce-based content screening algorithms. They plan to deploy their data-leak detection algorithms in a testbed with real-world network traffic data. These research activities will help refine and mature their data-leak detection technologies.