Securing Information

Stephen Chong
Associate Professor of Computer Science, School of Engineering and Applied Sciences

CURRENT RESEARCH

Helping programmers build secure computer systems

Information is often an organization's most valued asset, yet data breaches and other mishandling of information are far too common. Securing sensitive information is a priority in commerce, business dealings, and our personal lives. Dr. Stephen Chong at Harvard University and his research team, aim to help programmers build secure computer systems that ensure information security for users. Dr. Chong says, "Our goal is to make it easier to build safer, secure systems."

To accomplish this goal Dr. Chong and his team focus on computer programming languages. Their research is foundational: they are exploring and establishing principles of programming languages that will be incorporated into the commercial programming languages of the future, to help make programs written in those languages secure.

- Dr. Chong's group develops new programming languages that give strong guarantees about programs written in these languages. For example, they work on languages that can ensure that a program doesn't inadvertently leak or reveal confidential information. The programmer can specify what data is confidential, and their programming language will ensure that the program's behavior reveals nothing about the confidential data. Many computer systems handle confidential data, and yet interact with users that aren't allowed to see the confidential data, such as financial systems, medical records, document management systems, Facebook, and hundreds of web and mobile applications. The languages Dr. Chong's team are creating can provide assurance that these computer systems handle confidential data correctly.

- Another example is how to let people...

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AFFILIATION

Harvard University

EDUCATION

- Ph.D. in Computer Science 2008 , Cornell University
- B.S. in Computer Science 1997 , Victoria University of Wellington, New Zealand

AWARDS

- Secure Web Applications via Automatic Partitioning

RESEARCH AREAS

Technology, Cybersecurity, IOT, Devices, Data

FUNDING REQUEST

Dr. Chong's group works simultaneously on a number of projects; the timeframe for each of these projects ranges from 6 months to 2-3 years. His team includes 3-5 graduate students, 1-2 postdoctoral fellows and 1-3 undergraduates. Contributions to Dr. Chong's group will help fund graduate students and postdoctoral fellows.