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Susan Older

Electrical Engineering and
Computer Science
Cybersecurity and Formal
Methods

4-181 Center for Science &
Technology

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Title: Associate Professor, Program Director (CIS)

Degree(s):

- B.S. in Computer Science, Washington University
- Ph.D. in Pure & Applied Logic, Carnegie Mellon University

Research interests:

- Semantics of programming languages

- Logics of programs
- Access control, security, and trust
- Concurrency theory

Current Research:

My research primarily focuses on the development and application of mathematical models and specialty logics that support reasoning about complex system behavior, such as concurrency and cyber security. My recent work (joint with Shiu-Kai Chin) has centered on a modal logic for reasoning about access control, security, and trust. This logic can be applied at all levels of abstraction, from organizational policies to network protocols to operating-system requirements to hardware.

I am also interested in the technology transfer of these ideas (specifically, through undergraduate and graduate education): how does one best enable budding engineers and computer scientists to deploy these methods to develop assured systems?

Teaching Interests:

- Discrete mathematics
- Functional programming
- Programming languages
- Applications of formal methods for assurance

Select Publications:

Textbook:

Shiu-Kai Chin and Susan Older, Access Control, Security, and Trust: A Logical Approach, Taylor & Francis CRC Press, 2011.

Articles:

Susan Older and Shiu-Kai Chin, " Engineering Assurance at the Undergraduate Level," to appear in IEEE Security & Privacy, Nov/Dec 2012.

Shiu-Kai Chin, Erich Devendorf, Sarah Muccio, Susan Older, and James Royer, " Formal Verification for Mission Assurance in Cyberspace," Proceedings of the 16th Colloquium for Information Systems Security Education, Orlando, Florida, June 2012.

Glenn Benson, Shiu-Kai Chin, Sean Croston, Karthick Jayaraman, and Susan Older, " Credentials Management for High-Value Transactions," in Igor Kottenko and Victor Skormin (Eds.), Computer Network Security, 5th International Conference on Mathematical Methods, Models and Architectures for Computer

Network Security (MMM-ACNS), St. Petersburg, Russia,
September 2010.

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