

# Curriculum Vitae

**Philip W. L. Fong**

Department of Computer Science  
University of Calgary  
Calgary, Alberta, Canada T2N 1N4

`pwl.fong@ucalgary.ca`

`http://www.cpsc.ucalgary.ca/~pwl.fong`

Tel: (403) 667-6461

## Research Interests

Access control, security and privacy for the Internet of Things, protection technologies for social media, language-based security.

## Citizenship

Canadian.

## Education

- Ph.D., 2004, Computer Science, Simon Fraser University, Burnaby, BC, Canada.
- M.Math., 1995, Computer Science, University of Waterloo, Waterloo, Ontario, Canada.
- B.Math. (Honors Coop), 1993, Double Honours in Computer Science and Combinatorics & Optimization, University of Waterloo, Waterloo, Ontario, Canada.

## Positions Held

July 2009 – Present *Canada Research Chair in Software Security (Tier II)*, Department of Computer Science, University of Calgary, Calgary, Alberta, Canada.

Jan 2009 – Present	<i>Associate Professor</i> , Department of Computer Science, University of Calgary, Calgary, Alberta, Canada. Tenured appointment.
Jul 2007 – Dec 2009	<i>Associate Professor</i> , Department of Computer Science, University of Regina, Regina, Saskatchewan, Canada. Tenured appointment.
Feb 2004 – Jun 2007	<i>Assistant Professor</i> , Department of Computer Science, University of Regina, Regina, Saskatchewan, Canada.
May 2003 – Jan 2004	<i>Lecturer</i> , Department of Computer Science, University of Regina, Regina, Saskatchewan, Canada.
Jan – Apr, 2001	<i>Sessional Instructor</i> , School of Computing Science, Simon Fraser University, Burnaby, BC, Canada
May – Aug, 1997	<i>Summer Intern</i> , Software & Systems Research Laboratory, AT&T Research, Murray Hill, NJ, USA.
May – Aug, 1996	<i>Summer Intern</i> , Software & Systems Research Laboratory, AT&T Research, Murray Hill, NJ, USA.
Sept – Dec, 1992	<i>Research Assistant</i> , Pattern Analysis and Machine Intelligence Lab, University of Waterloo, Waterloo, Ontario, Canada.
Jan – Apr, 1992	<i>Research Assistant</i> , Logic Programming and Artificial Intelligence Lab, University of Waterloo, Waterloo, Ontario, Canada.

## Publications

### Refereed Journal Publications

- [J1] Ebrahim Tarameshloo, M. Hosseinkhani Loorak, Philip W. L. Fong, Sheelagh Carpendale. Using Visualization to Explore Original and Anonymized LBSN Data. *Computer Graphics Forum*, 35(3):291–300, February 2016.
- [J2] Mohammad Jafari, Reihaneh Safavi-Naini, Philip W. L. Fong, and Ken Barker. A Framework for Expressing and Enforcing Purpose-Based Privacy Policies. *ACM Transactions on Information and System Security*, 17(1), article 3, 31 pages, August 2014.
- [J3] Seyed Hossein Ahmadinejad and Philip W. L. Fong. Unintended Disclosure of Information: Inference Attacks by Third-Party Extensions to Social Network Systems. *Computers and Security*, 44:75-91, July 2014. Elsevier.
- [J4] Mona Hosseinkhani Loorak, Philip W. L. Fong, and Sheelagh Carpendale. Papilio: Visualizing Android Application Permissions. *Computer Graphics Forum*, 33(1):391–400, February 2014.
- [J5] Philip W. L. Fong and Simon Orr. Isolating Untrusted Software Extensions by Custom Scoping Rules. *Computer Languages, Systems and Structures*, 36(3):268–287, October 2010. Elsevier.
- [J6] Philip W. L. Fong. Discretionary Capability Confinement. *International Journal of Information Security*, 7(2):137–154, April 2008. Springer.

- [J7] Philip W. L. Fong. Reasoning about Safety Properties in a JVM-Like Environment. *Science of Computer Programming*, 67(2–3):278–300, July 2007. Elsevier.
- [J8] Philip W. L. Fong and Robert D. Cameron. Proof Linking: Modular verification of mobile programs in the presence of lazy, dynamic linking. *ACM Transactions on Software Engineering and Methodology (TOSEM)*, 9(4):379–409, October 2000.

## Refereed Conference Publications

- [C1] Henrique G. G. Pereira and Philip W. L. Fong. SEPD: An Access Control Model for Resource Sharing in an IoT Environment. To appear in *Proceedings of the 24th European Symposium on Research in Computer Security (ESORICS'2019)*, Luxembourg, September 23-27, 2019.  
**Remarks:** Acceptance rate:  $67/344 = 19.5\%$ . CiteSeer CS Impact Factor (May 2003): 1.25 (top 14.16% - ranked 173 of 1221).
- [C2] Juan Carlos Fuentes Carranza and Philip W. L. Fong. Brokering Policies and Execution Monitors for IoT Middleware. To appear in *Proceedings of the 24th ACM Symposium on Access Control Models and Technologies (SACMAT'19)*, Toronto, Canada, June 4–6, 2019.  
**Remarks:** Acceptance rate (full papers):  $12/52 = 23\%$ . CiteSeer CS Impact Factor (May 2003): 1.15 (top 17.44% - ranked 213 of 1221).
- [C3] Philip W. L. Fong. Results in Workflow Resiliency: Complexity, New Formulation, and ASP Encoding. In *Proceedings of the 9th ACM Conference on Data and Application Security and Privacy (CODASPY'19)*, pages 185–196, Dallas, TX, USA, March 25–27, 2019.  
**Remarks:** Acceptance rate (full papers):  $28/119 = 23.5\%$ .
- [C4] Lakshya Tandon and Philip W. L. Fong, and Reihaneh Safavi-Naini. HCAP: A History-Based Capability System for IoT Devices. In *Proceedings of the 23rd ACM Symposium on Access Control Models and Technologies (SACMAT'18)*, pages 247–258, Indianapolis, IN, USA, June 13–15, 2018.  
**Remarks:** Acceptance rate (full papers):  $12/30 = 40\%$ . CiteSeer CS Impact Factor (May 2003): 1.15 (top 17.44% - ranked 213 of 1221).
- [C5] Syed Zain R. Rizvi and Philip W. L. Fong. Efficient Authorization of Graph Database Queries in an Attribute-Supporting ReBAC Model In *Proceedings of the Eighth ACM Conference on Data and Application Security and Privacy (CODASPY'18)*, pages 204–211, Tempe, AZ, USA, March 19–21, 2018.  
**Remarks:** Acceptance rate (full & short papers):  $35/110 = 32\%$ .
- [C6] Seyed Hossein Ahmadinejad and Philip W. L. Fong. An Enforcement Model for Preventing Inference Attacks in Social Computing Platforms. In *Proceedings of the 22nd ACM Symposium on Access Control Models and Technologies (SACMAT'17)*, pages 55–66, Indianapolis, IN, USA, June 21-23, 2017.

**Remarks:** Acceptance rate (full papers):  $14/50 = 28\%$ . CiteSeer CS Impact Factor (May 2003): 1.15 (top 17.44% - ranked 213 of 1221).

- [C7] Pooya Mehregan and Philip W. L. Fong. Policy Negotiation for Co-owned Resources in Relationship-Based Access Control. In *Proceedings of the 21st ACM Symposium on Access Control Models and Technologies (SACMAT'2016)*, pages 125–136, Shanghai, China, June 6–8, 2016.

**Remarks:** Acceptance rate (full papers):  $18/55 = 33\%$ . CiteSeer CS Impact Factor (May 2003): 1.15 (top 17.44% - ranked 213 of 1221).

- [C8] Seyed Hossein Ahmadinejad, Philip W. L. Fong, and Rei Safavi-Naini. Privacy and Utility of Inference Control Mechanisms for Social Computing Applications. In *Proceedings of the 11th ACM Asia Conference on Computer and Communication Security (ASIACCS'2016)*, pages 829–840, Xi'an, China, May 30 - June 3, 2016.

**Remarks:** Acceptance rate (full papers):  $73/350 = 21\%$ .

- [C9] Syed Zain Rizvi and Philip W. L. Fong. Interoperability of Relationship- and Role-Based Access Control. In *Proceedings of the 6th ACM Conference on Data and Application Security and Privacy (CODASPY'2016)*, pages 231–242, New Orleans, LA, March 9–11, 2016.

**Remarks:** Acceptance rate (full papers):  $22/115 = 19\%$ .

- [C10] Syed Zain R. Rizvi, Philip W. L. Fong, Jason Crampton, and James Sellwood. Relationship-Based Access Control for an Open-Source Medical Records System. In *Proceedings of the 20th ACM Symposium on Access Control Models and Technologies (SACMAT'2015)*, pages 113–124, Vienna, Austria, June 1–3, 2015.

**Remarks:** Acceptance rate (full papers):  $17/59 = 29\%$ . CiteSeer CS Impact Factor (May 2003): 1.15 (top 17.44% - ranked 213 of 1221).

- [C11] Pooya Mehregan and Philip W. L. Fong. Design Patterns for Multiple Stakeholders in Social Computing. In *Proceedings of the 28th Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy (DBSec'2014)*, volume 8566 of *Lecture Notes in Computer Science*, pages 163–178, Vienna, Austria, July 14–16, 2014.

**Remarks:** Acceptance rate (full papers):  $22/63 = 35\%$ .

- [C12] Ebrahim Tarameshloo and Philip W. L. Fong. Access Control Models for Geo-Social Computing Systems. In *Proceedings of the 19th ACM Symposium on Access Control Models and Technologies (SACMAT'2014)*, pages 115–126, London, Ontario, Canada, June 25–27, 2014.

**Remarks:** Acceptance rate (full papers):  $17/58 = 29\%$ . CiteSeer CS Impact Factor (May 2003): 1.15 (top 17.44% - ranked 213 of 1221).

- [C13] Ebrahim Tarameshloo, Philip W. L. Fong, and Payman Mohassel. Protection in Federated Social Computing Systems. In *Proceedings of the Fourth ACM Conference on Data and Applications Security and Privacy (CODASPY'2014)*, pages 75–86, San Antonio, Texas, USA, March 3–5, 2014.

**Remarks:** Acceptance rate (full papers):  $19/119 = 16\%$ .

- [C14] Philip W. L. Fong, Pooya Mehregan, and Ram Krishnan. Relational Abstraction in Community-Based Secure Collaboration. In *Proceedings of the 20th ACM Conference on Computer and Communications Security (CCS'2013)*, pages 585–598, Berlin, Germany, November 4–8, 2013.

**Remarks:** Acceptance rate:  $105/530 = 20\%$ . CiteSeer CS Impact Factor (May 2003): 1.82 (top 4.01% - ranked 49 of 1221).

- [C15] Jayalakshmi Balasubramaniam and Philip W. L. Fong. A White-Box Policy Analysis and its Efficient Implementation. in *Proceedings of the 18th ACM Symposium on Access Control Models and Technologies (SACMAT'2013)*, pages 149–160, Amsterdam, Netherlands, June 12–14, 2013.

**Remarks:** Acceptance rate:  $19/62 = 30\%$ . CiteSeer CS Impact Factor (May 2003): 1.15 (top 17.44% - ranked 213 of 1221).

- [C16] Seyed Hossein Ahmadinejad and Philip W. L. Fong. On the Feasibility of Inference Attacks by Third-Party Extensions to Social Network Systems. In *Proceedings of the 8th ACM Symposium on Information, Computer and Communication Security (ASIACCS'2013)*, pages 161–166, Hangzhou, China, May 8–10, 2013.

**Remarks:** Acceptance rate (full & short papers):  $62/216 = 29\%$ .

- [C17] Arif Akram Khan and Philip W. L. Fong. Satisfiability and Feasibility in a Relationship-based Workflow Authorization Model. In *Proceedings of the 17th European Symposium on Research in Computer Security (ESORICS'2012)*, volume 7459 of *Lecture Notes in Computer Science*, pages 109–126, Pisa, Italy, September 10–12, 2012. Springer.

**Remarks:** Acceptance rate:  $50/248 = 20\%$ . CiteSeer CS Impact Factor (May 2003): 1.25 (top 14.16% - ranked 173 of 1221).

- [C18] Cheng Xu and Philip W. L. Fong. The Specification and Compilation of Obligation Policies for Program Monitoring. In *Proceedings of the 7th ACM Symposium on Information, Computer and Communications Security (ASIACCS'2012)*, 12 pages, Seoul, South Korea, May 1–3, 2012.

**Remarks:** Acceptance rate (full papers):  $35/159 = 22\%$ .

- [C19] Mohd Anwar and Philip W. L. Fong. A Visualization Tool for Evaluating Access Control Policies in Facebook-style Social Network Systems. In *Proceedings of the 27th ACM Symposium on Applied Computing (SAC'12)*, Security Track, pages 1443–1450, Riva del Garda, Trento, Italy, March 26–30, 2012.

**Remarks:** Acceptance rate (security track): 24%.

- [C20] Glenn Bruns, Philip W. L. Fong, Ida Siahaan, and Michael Huth. Relationship-Based Access Control: Its Expression and Enforcement Through Hybrid Logic. In *Proceedings of the 2nd ACM Conference on Data and Application Security and Privacy (CODASPY'12)*, pages 117–124, San Antonio, TX, USA, February 7–9, 2012.

**Remarks:** Acceptance rate (full & short papers):  $31/113 = 27\%$ .

- [C21] Philip W. L. Fong and Ida Siahaan. Relationship-Based Access Control Policies and Their Policy Languages. In *Proceedings of the 16th ACM Symposium on Access Control Models and Technologies (SACMAT'11)*, pages 51–60, Innsbruck, Austria, June 15-17, 2011.
- Remarks:** Acceptance rate:  $16/52 = 31\%$ . CiteSeer CS Impact Factor (May 2003): 1.15 (top 17.44% - ranked 213 of 1221).
- [C22] Philip W. L. Fong. Preventing Sybil Attacks by Privilege Attenuation: A Design Principle for Social Network Systems. In *Proceedings of the 2011 IEEE Symposium on Security and Privacy (S&P'11)*, pages 263–278, Oakland, California, USA, May 22-25, 2011.
- Remarks:** Acceptance rate:  $34/309 = 11\%$ . CiteSeer CS Impact Factor (May 2003): 1.39 (top 10.97% - ranked 134 of 1221).
- [C23] Philip W. L. Fong. Relationship-Based Access Control: Protection Model and Policy Language. In *Proceedings of the First ACM Conference on Data and Application Security and Privacy (CODASPY'11)*, pages 191–202, San Antonio, Texas, USA, February 21-23, 2011.
- Remarks:** Acceptance rate:  $21/69 = 30\%$ . Best Paper Runner-Up Award. CiteSeer CS Impact Factor (May 2003) is not available.
- [C24] Mohammad Jafari, Philip W. L. Fong, Reihaneh Safavi-Naini, Ken Barker, and Nicholas Paul Sheppard. Towards Defining Semantic Foundations for Purpose-Based Privacy Policies. In *Proceedings of the First ACM Conference on Data and Application Security and Privacy (CODASPY'11)*, pages 213-224, San Antonio, Texas, USA, February 21-23, 2011.
- Remarks:** Acceptance rate:  $21/69 = 30\%$ . CiteSeer CS Impact Factor (May 2003) is not available.
- [C25] Philip W. L. Fong, Mohd Anwar and Zhen Zhao. A Privacy Preservation Model for Facebook-Style Social Network Systems. In *Proceedings of the 14th European Symposium on Research In Computer Security (ESORICS'09)*, volume 5789 of *Lecture Notes in Computer Science*, pages 303–320, Saint Malo, France, September 21-23, 2009. Springer.
- Remarks:** Acceptance rate:  $42/220 = 19\%$ . CiteSeer CS Impact Factor (May 2003): 1.25 (top 14.16% - ranked 173 of 1221).
- [C26] Fei Yan and Philip W. L. Fong. Efficient IRM Enforcement of History-Based Access Control Policies. In *Proceedings of the Fourth ACM Symposium on Information, Computer and Communication Security (ASIACCS'09)*, pages 35–46, Sydney, Australia, March 10–12, 2009.
- Remarks:** Acceptance rate:  $33/147 = 22\%$ .
- [C27] Boting Yang and Philip W. L. Fong. Two NP-Complete Problems in Software Security. In *Proceedings of the International Conference on Relations, Orders and Graphs: Interaction with Computer Science (ROGICS'08)*, Mahdia, Tunisia, May 12–17, 2008.
- [C28] Philip W. L. Fong and Simon Orr. A Module System for Isolating Untrusted Software Extensions. In *Proceedings of the 22nd Annual Computer Security Applications Conference (ACSAC'06)*, pages 203–212, Miami Beach, Florida, USA, December 11–15, 2006.

**Remarks:** Acceptance rate:  $40/132 = 30\%$ . CiteSeer CS Impact Factor: 0.63 (top 42.66% - ranked 521 of 1221).

- [C29] Philip W. L. Fong. Discretionary Capability Confinement. In *Proceedings of the 11th European Symposium On Research In Computer Security (ESORICS'06)*, volume 4189 of *Lecture Notes in Computer Science*, pages 127–144, Hamburg, Germany, September 18–20, 2006. Springer.

**Remarks:** Acceptance rate:  $32/160 = 21\%$ . CiteSeer CS Impact Factor: 1.25 (top 14.16% - ranked 173 of 1221).

- [C30] Philip W. L. Fong. Link-Time Enforcement of Confined Types for JVM Bytecode. In *Proceedings of the Third Annual Conference on Privacy, Security and Trust (PST'05)*, pages 191–202, St. Andrews, New Brunswick, Canada, October 12–14, 2005.

**Remarks:** Acceptance rate:  $19/50 = 38\%$ .

- [C31] Philip W. L. Fong. Pluggable verification modules: An extensible protection mechanism for the JVM. In *Proceedings of the 19th ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA'04)*, pages 404–418, Vancouver, BC, Canada, October 24–28, 2004.

**Remarks:** Acceptance rate:  $27/173 = 16\%$ . CiteSeer CS Impact Factor: 2.05 (top 2.29% - rank 28 of 1221).

- [C32] Philip W. L. Fong. Access control by tracking shallow execution history. In *Proceedings of the 2004 IEEE Symposium on Security and Privacy (S&P'04)*, pages 43–55, Berkeley, California, USA, May 9–12, 2004.

**Remarks:** Acceptance rate:  $19/186 = 10\%$ . CiteSeer CS Impact Factor: 1.39 (top 10.97% - ranked 134 of 1221).

- [C33] Philip W. L. Fong and Robert D. Cameron. Proof Linking: Distributed verification of Java classfiles in the presence of multiple classloaders. In *Proceedings of the USENIX Java Virtual Machine Research and Technology Symposium (JVM'01)*, pages 53–66, Monterey, California, USA, April 23–24, 2001.

**Remarks:** Acceptance rate:  $18/50 = 36\%$ .

- [C34] Philip W. L. Fong and Robert D. Cameron. Proof Linking: An architecture for modular verification of dynamically-linked mobile code. In *Proceedings of the ACM SIGSOFT Sixth International Symposium on the Foundations of Software Engineering (FSE'98)*, pages 222–230, Orlando, Florida, USA, November 3–5, 1998.

**Remarks:** Acceptance rate:  $29/141 = 21\%$ . CiteSeer CS Impact Factor: 1.88 (top 3.43% - rank 42 of 1221).

- [C35] Premkumar T. Devanbu, Philip W. L. Fong, and Stuart G. Stubblebine. Techniques for trusted software engineering. In *Proceedings of the 20th International Conference on Software Engineering (ICSE'98)*, pages 126–135, Kyoto, Japan, April 19–25, 1998.

**Remarks:** Acceptance rate:  $41/209 = 20\%$ . CiteSeer CS Impact Factor: 0.90 (top 27.92% - rank 341 of 1221).

[C36] M.-A. D. Storey, K. Wong, P. Fong, D. Hooper, K. Hopkins, H. A. Müller. On designing an experiment to evaluate a reverse engineering tool. In *Proceedings of the 3rd Working Conference on Reverse Engineering (WCRE'96)*, Monterey, California, USA, pages 31–40, November 1996.

[C37] Philip W. L. Fong. A quantitative study of hypothesis selection. In *Proceedings of the Twelfth International Conference on Machine Learning (ICML'95)*, pages 226–234, Tahoe City, California, USA, July 9–12, 1995.

**Remarks:** Acceptance rate:  $68/213 = 32\%$ . CiteSeer CS Impact Factor: 2.12 (top 1.88% - rank 23 of 1221).

[C38] Qiang Yang and Philip W. L. Fong. Constraint relaxation using local search and abstraction. In *Proceedings of the Third International Conference for Young Computer Scientists (ICYCS'93)*, pages 2118–2121, Beijing, China, 1993. Sponsoring Societies: ICYCS, ACM.

## Refereed Workshop Publications

[W1] Tam Thanh Doan, Reihaneh Safavi-Naini, Shuai Li, Sepideh Avizheh, Muni Venkateswarlu K., and Philip W. L. Fong. Towards a Resilient Smart Home. In *Proceedings of the 2018 Workshop on IoT Security and Privacy (IoT S&P'18)*, pages 15–21, Budapest, Hungary, August 20, 2018.

[W2] Seyed Hossein Ahmadinejad, Mohd Anwar, and Philip W. L. Fong. Inference Attacks by Third-Party Extensions to Social Network Systems. In *Proceedings of the 3rd IEEE International Workshop on Security and Social Networking (SESOC'11)* (published as part of *Proceedings for the 2011 IEEE International Conference on Pervasive Computing and Communications Workshops - PERCOM Workshops*), pages 282–287, Seattle, Washington, USA, March 21, 2011.

**Remarks:** Acceptance rate:  $7/23 = 30\%$ .

[W3] Mohd Anwar, Philip W. L. Fong, Xue-Dong Yang, and Howard Hamilton. Visualizing Privacy Implications of Access Control Policies in Social Network Systems. In *Proceedings of the Fourth International Workshop on Data Privacy Management (DPM'09)*, volume 5939 of *Lecture Notes in Computer Science*, pages 106–120 Saint Malo, France, September 24–25, 2009. Springer.

**Remarks:** Acceptance rate:  $8/23 = 35\%$ .

[W4] Qiang Yang, Philip Fong and Edward Kim. Design Patterns for Planning Systems. In *Proceedings of the 1998 AIPS Workshop on Knowledge Engineering and Acquisition for Planning: Bridging Theory and Practice*, Pittsburg, pages 104–112, July 1998. Also available as AAAI Technical Report WS-98-03.



- [W5] Qiang Yang and Philip W. L. Fong. Situated control rules as approximate plans: a PAC-based theory. In *Proceedings of the Third European Workshop on Planning (EWSP'95)*, Assisi, Italy, 1995. Also available in *New Direction in AI Planning*, Volume 31 of *Frontiers in Artificial Intelligence and Applications*, edited by M. Ghallab and A. Milani, January 1996, pp 327–339.

## Unrefereed Articles

- [U1] Philip W. L. Fong. Reading a Computer Science Research Paper. *Inroads – SIGCSE Bulletin*, 41(2):138-140, June 2009.

## Book Editorships

- [B1] Frédéric Cuppens, Joaquín Garcín-Alfaro, A. Nur Zincir-Heywood, Philip W. L. Fong (Eds.). *Foundations and Practice of Security — 7th International Symposium, FPS 2014, Montreal, QC, Canada, November 3–5, 2014. Revised Selected Papers. Lecture Notes in Computer Science*, volume 8930, Springer 2015.
- [B2] Rainer Bohme, Philip W. L. Fong and Reihaneh Safavi-Naini (Eds.). *Information Hiding — 12th International Conference, IH'2010, Calgary, AB, Canada, June 28–30, 2010, Revised Selected Papers. Lecture Notes in Computer Science*, volume 6387, Springer 2010.

## Professional Activities

1. Program Committee. *The 25th ACM Symposium on Access Control Models and Technologies (SACMAT'2020)*, 2020.
2. Program Committee. *The 10th ACM Conference on Data and Application Security and Privacy (CODASPY'2020)*, New Orleans, LA, USA, March 16–18, 2020.
3. Program Committee. *The 24th ACM Symposium on Access Control Models and Technologies (SACMAT'2019)*, Toronto, Canada, June 4–6, 2019.
4. Program Committee. *The 9th ACM Conference on Data and Application Security and Privacy (CODASPY'2019)*, Dallas, TX, USA, March 25–27, 2019.
5. Program Committee. *The 23rd ACM Symposium on Access Control Models and Technologies (SACMAT'2018)*, Indianapolis, IN, USA, June 13–15, 2018.
6. Blue Sky Track Program Committee. *The 23rd ACM Symposium on Access Control Models and Technologies (SACMAT'2018)*, Indianapolis, IN, USA, June 13–15, 2018.
7. Program Committee. *The 8th ACM Conference on Data and Application Security and Privacy (CODASPY'2018)*, Tempe, AZ, USA, March 19–21, 2018.

8. Security Track Chair. *The 15th Annual Conference on Privacy, Security and Trust (PST'2017)*, Calgary, Alberta, Canada, August 28-30, 2017.
9. Program Committee. *The 22nd ACM Symposium on Access Control Models and Technologies (SACMAT'2017)*, Indianapolis, IN, USA, June 21–23, 2017.
10. Program Committee. *The Seventh ACM Conference on Data and Application Security and Privacy (CODASPY'2017)*, Scottsdale, Arizona, USA, March 22–24, 2017.
11. Program Committee. *The 21st ACM Symposium on Access Control Models and Technologies (SACMAT'2016)*, Shanghai, China, June 6–8, 2016.
12. Program Committee. *The Sixth ACM Conference on Data and Application Security and Privacy (CODASPY'2016)*.
13. Program Committee. *The First IEEE European Symposium on Security and Privacy (EuroS&P'2016)*, Saarbrücken, Germany, March 21-24, 2016.
14. Appointed Group Member. *Computer Science Evaluation Group*, Natural Sciences and Engineering Research Council of Canada, 2014–2017.
15. Program Committee. *The 20th ACM Symposium on Access Control Models and Technologies (SACMAT'2015)*, Vienna, Austria, June 1–3, 2015.
16. Program Committee. *The Fifth ACM Conference on Data and Application Security and Privacy (CODASPY'2015)*, San Antonio, TX, USA, March 2–4, 2015.
17. Program Committee. *The 21st ACM Conference on Computer and Communications Security (CCS'2014)*, Scottsdale, Arizona, USA, November 3–7, 2014.
18. Program Co-chair. *The 7th International Symposium on Foundations and Practice of Security (FPS'2014)*, Montreal, Canada, November 3–5, 2014.
19. Program Committee. *The 19th European Symposium on Research in Computer Security (ESORICS'2014)*, Wrocław, Poland, September 7–11, 2014.
20. Program Committee. *The 19th ACM Symposium on Access Control Models and Technologies (SACMAT'2014)*, London, Ontario, Canada, June 25–27, 2014.
21. Program Committee. *The Fourth ACM Conference on Data and Application Security and Privacy (CODASPY'2014)*, San Antonio, Texas, USA, March 3–5, 2014.
22. Program Committee. *The 18th ACM Symposium on Access Control Models and Technologies (SACMAT'2013)*, Amsterdam, NL, June 12–14, 2013
23. Program Committee. *The 8th ACM Symposium on Information, Computer and Communications Security (ASIACCS'2013)*, Hangzhou, China, May 8–10, 2013.

24. Program Committee. *The Third ACM Conference on Data and Application Security and Privacy (CODASPY'2013)*, San Antonio, Texas, USA, February 18–20, 2013.
25. Program Committee. *The 17th ACM Symposium on Access Control Models and Technologies (SACMAT'2012)*, Newark, USA, June 20–22, 2012.
26. Program Chair (Security Theme). *The 10th Annual Conference on Privacy, Security and Trust (PST'2012)*, Paris, France, July 16–18, 2012.
27. Program Committee. *The 4th International Workshop on Security and Online Social Networks (SESOC'2012)*, Lugano, Switzerland, March 19, 2012.
28. Program Committee. *The 2nd ACM Conference on Data and Application Security and Privacy (CODASPY'2012)*, San Antonio, Texas, USA, February 8–10, 2012.
29. Editorial Board. *Journal of Information Security*, Scientific Research Publishing, 2010 – present.
30. Program Committee. *The 6th International Workshop on Data Privacy Management (DPM'2011)*, in conjunction with ESORICS'2011, Leuven, Belgium, September 15–16, 2011.
31. Program Committee. *The 5th International Conference on Network and System Security (NSS'2011)*, Milan, Italy, September 6–8, 2011.
32. Program Committee. *The 16th ACM Symposium on Access Control Models and Technologies (SACMAT'2011)*, Innsbruck, Austria, June 15–17, 2011.
33. Invited reviewer. *ACM Transactions on Information and System Security (TISSEC)*, ACM, 2010.
34. Invited reviewer. *International Journal of Information Security (IJIS)*, Springer, 2010.
35. Invited reviewer. *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, IEEE, 2010.
36. General Chair. *The 12th Information Hiding Conference*, Calgary, Alberta, Canada, June 28-30, 2010.
37. Program Committee. *The 5th International Workshop on Data Privacy Management (DPM'2010)*, in conjunction with ESORICS'2010, Athens, Greece, September 23, 2010.
38. Program Committee. *The 5th IEEE International Workshop on Security, Trust, and Privacy for Software Applications (STPSA'10)*, in conjunction with COMPSAC'10, Seoul, South Korea, July 19–23, 2010.
39. Program Committee. *The 4th International Conference on Network and System Security (NSS'10)*, Melbourne, Australia, September 1–3, 2010.
40. Program Committee. *The 2009 Annual Computer Security Applications Conference (ACSAC'09)*, Honolulu, Hawaii, USA, December 7–11, 2009.

41. Reviewer. *The 4th International Conference on Information Theoretic Security (ICITS'09)*, Shizuoka, Japan, December 3–6, 2009.
42. Program Committee. *The 3rd International Conference on Network and System Security (NSS'09)*, Gold Coast, Australia, October 19–21, 2009.
43. Program Committee. *The Seventh Annual Conference on Privacy, Security and Trust (PST'09)*, Saint John, New Brunswick, Canada, August 25–27, 2009.
44. Reviewer. *International Journal of Information Security*, Springer, 2009.
45. Program Committee. *The 4th IEEE International Workshop on Security, Trust, and Privacy for Software Applications (STPSA'09)*, in conjunction with COMPSAC'09, Seattle, Washington, USA, July 20–24, 2009.
46. Reviewer. *Computers and Security*, Elsevier, 2009.
47. Program Committee. *The 2008 IEEE International Workshop on Cyberspace Safety and Security (CSS'08)*, Sydney, Australia, December 12, 2008.
48. Reviewer. *The 11th International Symposium on Recent Advances in Intrusion Detection (RAID'08)*, Cambridge, Massachusetts, USA, September 15–17, 2008.
49. Program Committee. *The 24th Annual Computer Security Applications Conference (ACSAC'08)*, Anaheim, California, USA, December 8–12, 2008.
50. Program Committee. *The Sixth Annual Conference on Privacy, Security and Trust (PST'08)*, Delta Fredericton, Fredericton, New Brunswick, Canada, October 1–3, 2008.
51. Program Committee. *The Third IEEE International Workshop on Security, Trust, and Privacy For Software Applications (STPSA'08)*, in conjunction with COMPSAC'08, Turku, Finland, July 28 – August 1, 2008.
52. Reviewer. *IEEE Software*, 2007.
53. Program Committee. *The 23rd Annual Computer Security Applications Conference (ACSAC'07)*, Miami Beach, Florida, December 10–14, 2007.
54. Program Committee. *The First International Workshop on Run Time Enforcement for Mobile and Distributed Systems (REM'07)*, Dresden, Germany, September 26–27, 2007. In conjunction with *The 12th European Symposium On Research In Computer Security (ESORICS'07)*.
55. Program Committee. *The Second IEEE International Workshop on Security, Trust, and Privacy for Software Applications (STPSA'07)*. In conjunction with *The 31st Annual International Computer Software and Applications Conference (COMPSAC'07)*, Beijing, China, July 24–27, 2007.
56. Reviewer. *IEEE Transactions on Software Engineering*, 2007.

57. Reviewer. *Journal of Computer Security — Special Issue on Privacy, Security and Trust Technologies: Evolution and Challenges (PST'06)*, 2007.
58. Reviewer. *IEEE Intelligent Systems*, 2007.
59. Reviewer. *22nd Annual Computer Security Applications Conference (ACSAC'06)*, Miami Beach, Florida, USA, December 11-15, 2006.
60. Program Committee. *Fourth Annual Conference on Privacy, Security and Trust (PST'06)*, Oshawa, Ontario, Canada, October 31 – November 1, 2006.
61. Reviewer. *IEEE International Conference on Communications (ICC'06)*, Istanbul, Turkey, June 11–15, 2006.
62. Reviewer. *28th International Conference on Software Engineering (ICSE'06)*, Shanghai, China, May 20–28, 2006.
63. Reviewer. *Journal of Systems and Software*, 2005.
64. Reviewer. *Fifth International Conference on Quality Software (QSIC'05)*, Melbourne, Australia, September 19–21, 2005.
65. Reviewer. *IEEE Transactions on Dependable and Secure Computing (TDSC)*, 2004.
66. Reviewer. *IEEE Transactions on Software Engineering (TSE)*, 2004.
67. Reviewer. *ACM Transactions on Programming Languages and Systems (TOPLAS)*, 2004.
68. Program Committee. *The 8th International Conference on Software Reuse (ICSR'04)*, Madrid, Spain, July 5–9, 2004.
69. Reviewer. *The Computer Journal*, Oxford University Press, 2003.

## Invited Talks and Visits

1. Invited talk. *Social Media and Personal Security/Privacy*. ISPIA/CMSS Workshop: Defining Private and Public Interests in Cybersecurity, Calgary, Alberta, Canada, October 31, 2016.
2. Invited keynote talk. *Security of Internet of Things*. Security Researchers and Industry Experts Talks (SecRETs'2006), Calgary, Alberta, Canada, October 19, 2016.
3. Invited keynote talk. *Logic, Policy Languages, and Relationship-Based Access Control*. The First Workshop on Action Languages, Process Modeling, and Policy Reasoning (ALPP'2015), Lexington, KY, USA, September 27, 2015.
4. Invited talk. *Satisfiability and Feasibility in a Relationship-Based Workflow Authorization Model*, Department of Electrical and Computer Engineering, University of Waterloo, Ontario, Canada, June 24, 2013.

5. Invited talk. *Preventing Sybil Attacks by Privilege Attenuation: A Design Principle for Social Network Systems*, Département d'informatique et de génie logiciel, Université Laval, Québec, Canada, March 18, 2011.
6. Invited talk. *Keep Your Friends Close: A Formal Model and a Visualization Tool for Relationship-based Access Control*, Symposium on Security and Formal Method, Department of Information Engineering and Computer Science, University of Trento, Italy, March 30, 2010.
7. Invited talk. *Keep Your Friends Close: Protection Technologies for Social Network Systems*. Distinguished Lecture, Institute for Security, Privacy and Information Assurance, University of Calgary, Calgary, Alberta, Canada, December 3, 2009.
8. Invited talk. *A Privacy Preservation Model for Facebook-style Social Network Systems*. iCIS Security Seminar, iCORE Information Security Laboratory, Department of Computer Science, University of Calgary, Calgary, Alberta, Canada, November 20, 2009.
9. Invited talk. *Discretionary Capability Confinement*. iCORE Information Security Laboratory, Department of Computer Science, University of Calgary, Calgary, Alberta, Canada, April 25, 2008.
10. Invited talk. *ISOMOD: A Module System for Isolating Untrusted Software Extensions*. MITACS Digital Security Seminar Series. Carleton University, Ottawa, Ontario, Canada, March 14, 2006.
11. Invited talk. *Capability Type Systems for Secure Cooperation*, Department of Computing, The Hong Kong Polytechnic University, June 21, 2005.
12. Invited talk. *Viewer Discretion: Language-based Protection Mechanisms for Dynamically Extensible Systems*, Department of Computing, The Hong Kong Polytechnic University, June 14, 2005.
13. Visiting scholar. Department of Computing, Hong Kong Polytechnic University, Hong Kong, June 2005.
14. Invited talk. *Open Licensing and Academic Technologies*, Centre for Academic Technologies, University of Regina, Regina, Saskatchewan, Canada, March 18, 2004.
15. Invited talk. *Proof Linking: A Modular Verification Architecture for Mobile Code Systems*, Department of Computing Science, University of Alberta, Edmonton, Alberta, Canada, January 15, 2004.

## Funding

1. \$100,000 (per annum, 5 years), PI, *Tier-II Canada Research Chair in Software Security*. Canada Research Chairs, 2014–2019.

2. \$39,000 (per annum, 5 years), PI, *Security and Privacy Protection for Social Computing*, Discovery Grant - Individual, Natural Sciences and Engineering Research Council of Canada, 2014–2019.
3. \$29,000 USD (1 year), PI, *Inference Attacks in Extensible Social Network Systems*. Google Research Award, 2012.
4. \$100,000 (per annum, 5 years), PI, *Tier-II Canada Research Chair in Software Security*. Canada Research Chairs, 2009–2014.
5. \$100,000, PI, *Start-up Grant*. University of Calgary, 2009–2011.
6. \$93,290 (per annum, 2 years), PI, *Protection Technologies for the Facebook Generation*. Strategic Project Grant – Supplemental Competition (SPG), Natural Sciences and Engineering Research Council of Canada, 2008–2010. With Howard Hamilton and Xue-Dong Yang.
7. \$1,000,000 (per annum, 5 years), *The Internetworked Systems Security Network (ISSNet)*. Strategic Network Grant (SNG), Natural Sciences and Engineering Research Council of Canada, 2007–2012. With Paul Van Oorschot (Leader), and 13 others.
8. \$120,000 (profiled evenly over 4 years), PI, *Programming Abstractions for Access Control: Capability, Delegation, Obligation*, Discovery Accelerator Supplement, Natural Sciences and Engineering Research Council of Canada, 2007–2011.
9. \$25,700 (per annum, 5 years), PI, *Programming Abstractions for Access Control: Capability, Delegation, Obligation*, Discovery Grant - Individual, Natural Sciences and Engineering Research Council of Canada, 2007–2012.
10. \$66,352, *Grid Computing Laboratory*, Innovation and Science Fund, Province of Saskatchewan, 2005. With Terence Chan (PI) and Mauricio Barbi.
11. \$66,352, *Grid Computing Laboratory*, New Opportunities Fund, Canada Foundation for Innovation, 2005. With Terence Chan (PI) and Mauricio Barbi.
12. \$15,200, PI, *CS 170: Collaborative Authoring of Tutorial Resources Using an Open Source Development Model*. TEL Projects, Sask Learning, 2005.
13. \$2,000, *Creating Information Commons: Responses to Commercialization and Globalization*. Transdisciplinary Project - Competition B, University of Regina, 2005. With Daryl Hepting (PI), Patricia Elliott, David Gerhard, Roger Petry and Clair Polster.
14. \$20,700 (per annum, 3 years), PI, *Trusted Software Engineering: Secure deployment of dynamic software extensions*, Discovery Grant - Individual, Natural Sciences and Engineering Research Council of Canada, 2004–2007.
15. \$60,000, *Open Systems Lab*, Institution Grant, Western Economic Diversification Canada. 2004. Plus \$6,000 top-up from Faculty of Science, University of Regina, Regina, Saskatchewan, Canada. With Daryl Hepting (PI).

16. \$2,500, PI, *Open Source Seminar Series: Ideals, Politics, Business Models, and Technical Challenges*, Transdisciplinary Project 2003–04 (Category B), President’s Office, University of Regina, Regina, Saskatchewan, Canada. 2004. With Daryl Hepting, David Elliott, Roger Petry and Robert Anderson.
17. \$28,000, PI, Start-up Grant, Faculty of Science, University of Regina, Regina, Saskatchewan, Canada. 2003.
18. \$12,000, PI, Start-up Grant, Department of Computer Science, University of Regina, Regina, Saskatchewan, Canada. 2003–2004.
19. \$2,500, PI, VP (Research & International) Matching Start-up Grant, Office of Research Services, University of Regina, Regina, Saskatchewan, Canada. 2003.

## Student and Postdoctoral Fellow Supervision

### Graduate Student Supervision (In Progress)

- Chahal Arora, MSc.
- Henrique Gabriel Gualarte Pereira, PhD.
- Syed Zain Raza Rizvi, PhD.
- Shauvik Shadman, MSc.
- Si Zhang, PhD.

### Graduate Student Supervision (Completed)

- Lakshya Tandon, MSc (2018). Thesis: *HCAP: A History-Based Capability System for IoT Devices*.
- Juan Carlos Fuentes Carran, MSc (2018). Thesis: *Scoping and Execution Monitoring for IoT Middleware*.
- Ebrahim Tarameshloo, PhD (2011–2016). Dissertation: *Privacy in Geo-social Networking Systems*.
- Pooya Mehregan, PhD (2011–2016). Dissertation: *Multiple Ownership in Access Control*.
- Seyed Hossein Ahmadinejad, PhD (2010–2015). Dissertation: *A View-Based Protection Model to Prevent Inference Attacks by Third-Party Extensions to Social Computing Platforms*.
- Syed Zain Raza Rizvi, MSc (2013–2015). Thesis: *ReBAC2015: Interoperability of Relationship- and Role-Based Access Control*.



- Jayalakshmi Balasubramaniam, MSc (2010–2012). Thesis: *A Novel Approach to White-Box Policy Analysis*.
- Arif Khan, MSc (2010–2012). Thesis: *Satisfiability and Feasibility in a Relationship-based Workflow Authorization Model*.
- Cheng Xu, MSc (2008–2011). Thesis: *The Specification and Compilation of Obligation Policies*.
- Pan Liu, MSc (2006–2011). Project: *Capability Confinement by Aliasing Control*.
- Zhen Zhao, MSc (2006–2010). Thesis: *A Privacy Preservation Model for Facebook-Style Social Network Systems*.
- Hongya Sun, MSc (2006–2009). Project: *Exploiting and Preventing Software Vulnerabilities in Web Applications*.
- Fei Yan, MSc (2006–2008). Thesis: *Efficient IRM Enforcement of History-Based Access Control Policies*.
- Huan Long Zhang, MSc (2004–2008). Project: *Enforcing Communication Integrity in Dynamically Extensible Systems*.
- James Ranson, MSc (2004–2008, co-supervised with H. Hamilton). Thesis: *A Semantics of Python in Isabelle/HOL*.
- Simon Orr. MSc (2004–2006). Thesis: *A Module System for Isolating Untrusted Software Extensions*.

#### Postdoctoral Fellow Supervision (Completed)

- Ida Siahaan. June 2010 – June 2012.
- Mohd Anwar. February 2009 – September 2010.