

Fei Chen

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Computer Science and Engineering
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Education

Ph.D.	Computer Science and Engineering Thesis Topic: Performance and Privacy of Access Control Policies GPA: 4.0/4.0 Advisor: Alex X. Liu	Michigan State University	<i>expected</i> May 2011
M.E.	Automatic Control Major: Information Processing and Pattern Recognition GPA: 87/100. Rank: top 15%	Tsinghua University	July 2007
B.S.	Automatic Control GPA: 88/100. Rank: top 10%	Tsinghua University	July 2005

Major Awards

1. Best Student Paper Award in the USENIX Large Installation System Administration Conference (**USENIX LISA**), 2010.
2. Microsoft Research PhD Fellowship Finalist, 2010.
3. Best Poster Award in the IEEE International Conference on Network Protocols (**ICNP**), 2009.
4. Golden Prize in Nokia Symbian Application Challenge, 2005.
This award is presented to recognize outstanding mobile applications developers for the best new applications based on the S60 3rd Edition in Great China. (One other co-recipient)
5. Research Award in CSE Graduate Poster Workshop, Michigan State University, 2008.
This award is presented to recognize outstanding graduate students for pursuit and achievement of excellence in research and presentation in this workshop. (Two other co-recipients in MSU CSE department)
6. Excellent Graduate Student of Tsinghua University, 2007.
This award is presented annually to recognize outstanding graduate students who have made excellent academic achievements in Tsinghua University.
7. First Prize of Student Research Plan, Tsinghua University, 2005.
8. First Prize of the Beijing College Physics Contest, 2002.
9. First Prize of China's National Olympic Physics Olympiad, 2001.

Journal Publications

1. Alex X. Liu and **Fei Chen**. "Privacy Preserving Collaborative Enforcement of Firewall Policies in Virtual Private Networks". (Full paper). To appear in *IEEE Transactions on Parallel and Distributed Systems (TPDS)*.
2. Alex X. Liu, **Fei Chen**, JeeHyun Hwang, and Tao Xie. "Designing Fast and Scalable XACML Policy Evaluation Engines". (Full paper). To appear in *IEEE Transactions on Computers (TC)*.
3. Zheng Qin, **Fei Chen**, Qiang Wang, Alex X. Liu, and Zhiguang Qin. "Towards High Performance Security Policy Evaluation". (Full paper). To appear in *Journal of Supercomputing*.

Conference Publications

1. **Fei Chen**, Bezawada Bruhadeshwar, and Alex X. Liu. "A Cross-Domain Privacy-Preserving Protocol for Cooperative Firewall Optimization". (Full paper). To appear in *Proceedings of the IEEE Conference on Computer Communications (INFOCOM)*, 2011.
Acceptance rate: $291/1823 = 16.0\%$.
2. **Fei Chen**, Alex X. Liu, JeeHyun Hwang, and Tao Xie. "First Step Towards Automatic Correction of Firewall Policy Faults". (Full paper). In *Proceedings of the USENIX Large Installation System Administration Conference (USENIX LISA)*, 2010.
Best Student Paper Award.
3. **Fei Chen** and Alex X. Liu. "SafeQ: Secure and Efficient Query Processing in Sensor Networks". (Full paper). In *Proceedings of the IEEE Conference on Computer Communications (INFOCOM)*, 2010.
Acceptance rate: $276/1575 = 17.5\%$.
4. Alex X. Liu, **Fei Chen**, JeeHyun Hwang, and Tao Xie. "XEngine: A Fast and Scalable XACML Policy Evaluation Engine". (Full paper). In *Proceedings of the International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS)*, 2008.
Acceptance rate: $36/201 = 18\%$. Average review score = 8.7 out of 10.
5. Alex X. Liu and **Fei Chen**. "Collaborative Enforcement of Firewall Policies in Virtual Private Networks". (Full paper). In *Proceedings of the Annual ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing (PODC)*, 2008.
Acceptance rate: $40/132 = 30\%$. Average review score = $(4 + 4 + 4)/3 = 4$ out of 5.
6. JeeHyun Hwang, Tao Xie, **Fei Chen**, and Alex X. Liu. "Fault Localization for Firewall Policies". (Short paper). In *Proceedings of the International Symposium on Reliable Distributed Systems (SRDS)*, 2009.
7. JeeHyun Hwang, Tao Xie, **Fei Chen**, and Alex X. Liu. "Systematic Structural Testing of Firewall Policies". (Full paper). In *Proceedings of the International Symposium on Reliable Distributed Systems (SRDS)*, 2008.

Referred Posters

1. **Fei Chen** and Alex X. Liu. "SafeQ: Secure and Efficient Query Processing in Sensor Networks" (Poster). In *Proceedings of the IEEE International Conference on Network Protocols (ICNP)*, 2009.
Best Poster Award.
2. **Fei Chen** and Alex X. Liu. "Privacy and Integrity Preserving Range Queries in Sensor Networks" (Poster). In *Proceedings of the ACM Conference on Computer and Communications Security (CCS)*, 2009.

Journal Papers in Submission

1. **Fei Chen**, Alex X. Liu, JeeHyun Hwang, and Tao Xie. "First Step Towards Automatic Correction of Firewall Policy Faults". In submission to *ACM Transactions on Autonomous and Adaptive Systems (TAAS)*.
2. JeeHyun Hwang, Tao Xie, **Fei Chen**, and Alex X. Liu. "Systematic Structural Testing of Firewall Policies". In submission to *IEEE Transactions on Network and Service Management (TNSM)*.

Conference Papers in Submission

1. **Fei Chen** and Alex X. Liu. "Privacy and Integrity Preserving Multi-dimensional Range Queries for Cloud Computing". In submission.
2. **Fei Chen**, Bezawada Bruhadeshwar, and Alex X. Liu. "Cross-Domain Privacy-Preserving Quantification of Network Reachability". In submission.
3. Yeqing Yi, Rui Li, **Fei Chen**, Alex X. Liu, and Yaping Lin. "QuerySec: Secure Range Query Processing in Sensor Networks Using Digital Watermarking". In submission.

Experience

- Research Assistant Michigan State University Aug 2007 – present
- High Performance Evaluation of Access Control Policies.
 1. *Prototyped XEngine, the first fast and scalable XACML policy evaluation engine (4000+ line Java code).*
 2. *XEngine has drawn much attention from both academia and industrial societies (downloaded **480** times).*
 - Testing, Fault Localization, and Automatic Fault Correction of Firewall Policies.
 1. *Proposed efficient and effective tools for firewall testing and fault localization.*
 2. *Prototyped the first systematic framework for automatic correction of firewall policy faults.*
 - Privacy and Integrity Preserving Data Publishing.
 1. *Designed and implemented a secure and efficient protocol for query processing in sensor networks.*
 2. *Designed and implemented a privacy and integrity preserving protocol for outsourced database.*
 - Cross-Domain Firewall Optimization and Network Reachability Quantification.
 1. *Designed and implemented the first privacy-preserving protocol for cooperative firewall optimization.*
 2. *Designed and implemented the first privacy-preserving protocol for quantifying network reachability.*
- Research Assistant Tsinghua University Sep 2005 – July 2007
- Digital Watermarking for MPEG-4 and H.264 Videos.
 1. *Designed and implemented an efficient digital watermarking scheme for MPEG-4 and H.264 videos.*

Guest Lectures

1. “Secure Multiparty Computation”. In the course of Computer and Network Security, February, 2011.
2. “Access Control”. In the course of Computer and Network Security, January, 2011.
3. “Collaborative Enforcement of Firewall Policies in Virtual Private Networks”, In the course of Computer and Network Security, March, 2009.

Other Awards

1. Student Travel Grant for INFOCOM 2011, USENIX LISA 2010, ICNP 2009, CSET 2009.
2. Summer Research Fellowship, Michigan State University, 2008, 2009, 2010.

Research Grants (that includes my research as preliminary studies)

1. CAREER: Towards High Performance Policy Evaluation. National Science Foundation - Trusted Computing (TC). \$425,000. PI: Alex X. Liu.
2. Privacy Preserving Execution of Distributed Security Policies. Michigan State University - Intramural Research Grants Program (IRGP). \$39,000. PI: Alex X. Liu.

Services

1. External Reviewer of ACM TISSEC, INFOCOM 2010, INFOCOM 2011, Journal of Supercomputing.
2. Graduate Student Representative in Department of Computer Science and Engineering, 2010, 2011.
3. Active Volunteer of Chinese Students and Scholars Association, 2008, 2009, 2010.

Referees

Dr. Alex X. Liu
 Assistant Professor
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