

Curriculum Vitae

Chung-Chih Li, Ph.D.
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Education

Ph.D. Computer & Information Science, Syracuse University, New York	2001
M.S. Computer Science, Lamar University, Texas	1991
B.S. Computer Science, Tamkang University, Taiwan	1986

Working Experiences and Positions

Illinois State University, Associate Professor	2009 ~ 2013
Illinois State University, Assistant Professor	2006 ~ 2009
Lamar University, Assistant Professor	2002 ~ 2006
Colgate University, Visiting Assistant Professor	2001 ~ 2002
Syracuse University, TA/RA,	1995 ~ 2001
ETS, Research Fellow	1995
The National Science Council of Taiwan, Computer instructor	1992, 1994
The City Bank of Taipei, Computer instructor	1987
UB Technology, Taiwan, Programmer	1986 ~ 1989

Honors and Awards

National Science Foundation (NSF CCLI Grant)	2009
Texas Advanced Research Program (ARP) Award	2006
Research Enhancement Grant, Lamar University	2004
Research Enhancement Grant, Lamar University	2003
LePage Award, the Wilbur R. LePage Endowment	2001
Outstanding TA Award, Syracuse University	1998
National Science Foundation Award	1998
Scholarship, Syracuse University	1996 ~ 2001
Outstanding TA Award, Dept. of EECS, Syracuse University	1996
Research Fellowship, ETS	1995

Teaching Accomplishments

- At Illinois State University 2006 ~ Present
 - IT-168 Structured Problem-Solving Using The Computer 2008
 - IT-179 Introduction to Data Structures 2006 ~ 2012
 - IT-275 Java as A Second Language 2010 ~ 2011
 - IT 279 Algorithms And Data Structures 2007
 - IT-327 Concepts of Programming Languages 2006 ~ 2012
 - IT-328 Introduction to The Theory of Computation 2007 ~ 2012
 - IT-368/374/385 Cryptography 2009
 - IT-385 Advanced Problem Solving and Team Work 2012
 - IT-287 Independent Study 2007 ~ 2012
 - IT-368.10/485.02 Topic course: ASP.NET 2009
 - IT-495 Master Project (Co-Chair) 2012
 - IT-499 Master Thesis (Co-Chair) 2007

- At Lamar University 2002 ~ 2006
 - COSC-1371 Introduction to Microcomputers/MS Office 2005
 - COSC-1173 Java Lab 2005, 2006
 - COSC-1336 CS1/Java 2004
 - COSC-1337 CS2/Java/Unix 2005
 - COSC-1373 CS1/C++ 2002, 2003
 - COSC-1374 CS2/C++/Unix 2003, 2004, 2005
 - COSC-2336 Data Structures 2005
 - COSC-3302 Introduction to Computational Theory 2003, 2005, 2006
 - COSC-4307 Compiler Construction 2004, 2005, 2006
 - COSC-5314 Logic and Discrete Structures 2004, 2005
 - COSC-5340 Cryptography 2003, 2004
 - COSC-5340 Computational Learning Theory 2003, 2004
 - COSC-5340 Computational Complexity Theory 2004
 - COSC-5315 Foundation of Computer Science 2004
 - COSC-5320 Formal Languages 2002
 - COSC-5369 Graduate Projects (numerous projects advised) 2002 ~ 2006
 - COSC-5390 Thesis (numerous MS thesis advised) 2002 ~ 2006

- At Colgate University 2001 ~ 2002, Visiting Professor
 - COSC-100 Introduction to Internet and Data Analysis 2001, 2002
 - COSC-101 Introduction to Computing (C++) 2002

■ At Syracuse University	1995 ~ 2001, Teaching Assistant
CIS-275 Discrete Mathematics and Data Structures	1998, 1999
CIS-375 Intermediate CS Mathematics	1997, 1998
CIS-500 Mathematics Logic	2001
CIS-520 Introduction to Abstract Mathematics	1996, 1997
CIS-623 Structured Programming and Formal Methods	2000
CIS-623 Semantics, Programming, and Verification	1996

Topics of Thesis and Graduate Project Advised (Selected)

1. Advance Encryption Standard as Pseudo-Random Number Generator
2. Energy Efficient Routing in Wireless Sensor Networks
3. Secure Email System Using LCM Noise Encryption
4. Email Encryption Using Linear Congruential Method And RSA
5. Email Cryptosystem Using Elliptic Curve and LCM
6. A Hierarchical Approx. RBF Neural Networks: Extension and Enhancements
7. IR Communication Language for Autonomous Robotics
8. Intelligent Web Page Ranking Based on User Preferences
9. Smart Client Application in Web Service
10. Discovery, Lookup, and Content Sharing Web Service

Research Interests

Computational Complexity Theory, Higher-Ordered Computation, Foundation of Programming Languages, Denotational Semantics, Formal Languages, Computational Learning Theory, Inductive Inference Machines, Logic & Computability, Cryptography, Coding Theory, Computer Security, Algorithm Analysis, Data Structures, Discrete Mathematics, Combinatorial Mathematics, Recursion Theory, Formal Methods, Artificial Intelligence, Natural Language Processing, Philosophy of Mathematics

Scholarly Activities

- Technical Paper Reviewer: (Selected)
 1. JSAN (Journal of Sensor and Actuator Networks)
 2. CLAS (Journal of Classification)
 3. ICCGI (International Conference on Computing in the Global Information Technology)

4. IMETI (International Multi-Conf. on Engineering and Tech. Innovation)
5. ACM SIGCSE, in the area of Theory and Algorithms
6. Journal of Information Systems Education
7. International Journal of Security and Networks
8. IEEE Int. Conf. on Communications
9. ACM CCSC:CS
10. The 10th Int. Conf. on Applications of Computer Algebra, Organizer

Peer Reviewed Publications

■ Journal publications:

1. Yang Xiao, Chung-Chih Li, Ming Lei, and Susan V. Vrbsky. Differentiated virtual passwords, secret little functions, and codebooks for protecting users from password theft. *IEEE Systems Journal*, accepted to appear.
2. Xiang Fu, Michael C. Powell, Michael Bantegui, and Chung-Chih Li. Simple linear string constraints. *Journal of Formal Aspects of Computing*, accepted to appear.
3. Chung-Chih Li. Speed-up theorems in type-2 computation using oracle Turing machines. *Journal of Theory of Computing Systems*, 45(4):880–896, July 2009.
4. Bo Sun, Yang Xiao, Chung-Chih Li, Hisao-Hwa Chen, and T. Andrew Yang. Security co-existence of wireless sensor networks and RFID for pervasive computing. *Elsevier Computer Communications Journal*, 31:4294–4303, 2008.
5. Ming Lei, Yang Xiao, Susan V. Vrbsky, and Chung-Chih Li. Virtual password using random linear functions for on-line services, ATM machines, and pervasive computing. *Elsevier Computer Communications Journal*, 31:4367–4375, 2008.
6. Bo Sun, Chung-Chih Li, Kui Wu, and Yang Xiao. A lightweight secure protocol for wireless sensor networks. *Elsevier Computer Communications Journal*, 29(13-14):2556–2568, August 2006. Special Issue on Wireless Sensor Networks, Performance, Reliability, Security and Beyond.
7. Chung-Chih Li. An immediate approach to balancing nodes of binary search trees. *Journal of Computing Sciences in Colleges*, 21(3):238–245, April 2006.

8. Chung-Chih Li and Hikyoo Koh. Using joseki for tactics deployment in computer go. *Journal of International Computer Games Association, ICGA*, 28(3):254–258, September 2005.
9. Chung-Chih Li, Hema Sagar R. Kandati, and Bo Sun. Security evaluation of email encryption using random noise generated by LCGs. *Journal of Computing Sciences in Colleges*, 20(4):294–301, 2005.
- **Papers in conference proceedings:**
10. Chung-Chih Li. Is the trilogy of gap, compression, and honesty theorems still significant at type-2? In *Turing centenary Conference, Computability in Europe 2012: How the World Computes*, Cambridge, UK, June 2012.
11. Chung-Chih Li, Kishan Mehrotra, and Chu Jong. Discrete mathematics as a transitional course. In *The International Conference on Frontiers in Education: Computer Science and Computer Engineering*, Las Vegas, USA, July 2012.
12. Chung-Chih Li. Honesty and time-constructibility in type-2 computation. In *Proceedings of Computability in Europe, CiE 2011: Models of Computation in Context*, Sofia, Bulgaria, June 2011.
13. Xiang Fu and Chung-Chih Li. A string constraint solver for detecting web application vulnerability. In *Proceedings of The 22nd International Conference on Software Engineering and Knowledge Engineering*, Redwood City, USA, July 2010.
14. Xiang Fu and Chung-Chih Li. Modeling regular replacement for string constraint solving. In *Proceedings of NASA Formal Methods Symposium*, pages 67–76, Washington D. C, USA, April 2010.
15. Chung-Chih Li. Union theorems in type-2 computations. In *Proceedings of Computability in Europe, CiE 2009: Mathematical Theory and Computational Practice*, Heidelberg, Germany, July 2009.
16. Chung-Chih Li. NP-completeness of RRS functions. In *Proceedings of Computability in Europe, CiE 2009: Mathematical Theory and Computational Practice*, Heidelberg, Germany, July 2009.
17. Chung-Chih Li. Query-optimal oracle Turing machines for type-2 computations. In *Proceedings of Computability in Europe, CiE 2008: Logic and Theory of Algorithms*, pages 293–303, Athens, Greece, June 2008.
18. Chu J. Jong and Chung-Chih Li. Multi-lateral constructive learning process with hands-on problem-based solving technology. In *Proceedings of*

- The 2008 International Conference on Frontiers in Education: Computer Science and Computer Engineering*, Las Vegas, Nevada, USA, July 2008.
19. Yang Xiao, Chung-Chih Li, Ming Lei, and Susan V. Vrbsky. Secret little functions and codebook for protecting users from password theft. In *Proceedings of IEEE ICC*, pages 1525–1529, 2008.
 20. Ming Lei, Yang Xiao, Susan V. Vrbsky, Chung-Chih Li, and Li Liu. A virtual password scheme to protect passwords on the internet. In *Proceedings of IEEE ICC*, pages 1536–1540, 2008.
 21. Dehu Qi and Chung-Chih Li. Self-organizing map based web pages clustering using web logs. In *Proceedings of 16th International Conference on Software Engineering and Data Engineering, SEDE-2007*, pages 265–270, Las Vegas, Nevada, July 2007.
 22. Chung-Chih Li. Speed-up theorems in type-2 computation. In S. Barry Cooper, Benedikt Löwe, and Andrea Sorbi, editors, *Proceedings of Computability in Europe, CiE 2007: Computation and Logic in the Real World*, pages 478–487, Siena, Italy, June 2007. Springer, LNCS 4497.
 23. Bo Sun, Chung-Chih Li, and Yang Xiao. A lightweight secure solution for RFID. In *Proceedings of IEEE GLOBECOM 2006*, San Francisco, CA, November 2006.
 24. Chung-Chih Li. Clocking type-2 computation in the unit cost model. In Arnold Beckmann, Ulrich Berger, Benedikt Löwe, and John V. Tucker, editors, *Proceedings of Computability in Europe, CiE 2006: Logical Approaches to Computational Barriers, CSR 7-2006*, pages 182–192, Swansea, UK, 2006.
 25. Bo Sun, Chung-Chih Li, Kui Wu, and Yang Xiao. A LCG-based secure protocol for wireless sensor. In *Proceedings of IEEE International Conference on Communications (ICC 2006): Wireless Ad Hoc and Sensor Networks Symposia*, pages 3627–3632, Istanbul, Turkey, 2006.
 26. Chung-Chih Li and Hikyoo Koh. Canonical sequence directed tactics analyzer for computer go games. In M. Mohammadian, editor, *Proceedings of the International Conference on Computational Intelligence for Modelling Control and Automation, CIMCA 2005*, volume 1, pages 1066–1071, Vienna, Austria, November 2005.
 27. Chung-Chih Li and Bo Sun. Using linear congruential generators for cryptographic purposes. In *Proceedings of the ISCA 20th International Conference on Computers and Their Applications*, pages 13–18, March

2005.

28. Chung-Chih Li. Asymptotic behaviors of type-2 algorithms and induced Baire topologies. In *Proceedings of the Third International Conference on Theoretical Computer Science*, pages 471–484, Toulouse, France, August 2004.
29. Hema Sagar R. Kandati and Chung-Chih Li. Encrypting emails with lcm random noises. In *Fifth Annual Lamar Student Research Conference*, Beaumont, Texas, 2004.
30. Chung-Chih Li and James S. Royer. On type-2 complexity classes: Abstract. *IEEE Conference on Computational Complexity*, May 2003.
31. Chung-Chih Li and James S. Royer. On type-2 complexity classes: Preliminary report. In *Proceedings of the Third International Workshop on Implicit Computational Complexity*, pages 123–138, Aarhus, Denmark, May 2001.
32. Chung-Chih Li. *Type-2 Complexity Theory*. Ph.D. dissertation, Syracuse University, Syracuse, New York, USA, 2001.
33. Chung-Chih Li. *Analysis of Go Game Tactics Based on Predefined Canonical Sequences*. Master thesis, Lamar University, Beaumont, Texas, USA, 1991.

■ Other editorial and column articles:

More than 100 column articles published in Taiwan's major news pagers and magazines on politics, education, and philosophy between 2008 and present.

Grants and Proposals

- Funded:
 1. Chung-Chih Li, Billy Lim. A Trial-and-Failure Project Tutoring System for Internet Technology Education NSF CCLI (Collaborative Research), \$55,009.
 2. Andrew T Yang, Chung-Chih Li. SOCO - Secure and Optimized Communication Organization for Target Tracking in Wireless Sensor Networks. 2006 Texas Advance Research Program, \$99,972.
 3. Chung-Chih Li. Encrypting Emails with LCM Random Noises. 2004 Lamar University Research Enhancement Grant, \$5,000.
 4. Chung-Chih Li. A New Approach to Measuring The Computational Complexity of Type-2 Algorithms. 2003 Lamar University Research Enhancement Grant, \$5,000.

- Not Funded:
- 5. Chung-Chih Li (PI at ISU), Xiang Fu (PI at Hofstra University). Collaborative Research: Constraint Solving for Automated Attack Signature Generation, NSF CISE Cross-Cutting Programs 2011, \$149,946.
- 6. Chung-Chih Li. Encryption with RRS Functions. 2009 CAST University Research Grant, \$5,000.
- 7. Chung-Chih Li. Query Optimal Programs in Type-2 Computation 2008 CAST University Research Grant, \$5,000.
- 8. Chung-Chih Li, Hikyoo Koh, Hsing-Wei Chu. Heuristic Development of GO Programs Using Canonical Deployment Sequences 2006 Texas Advance Research Program, \$100,000.
- 9. Chung-Chih Li. Second Order Complexity Classes and Their Applications 2003 Texas Advance Research Program, \$50,000. (Pre-approved)
- 10. Chung-Chih Li A New Approach to Define Asymptotic Behaviors of Type-2 Algorithms and Its Applications Measuring The Computational Complexity of Type-2 Algorithms. 2002 Lamar University Research Enhancement Grant, \$5,000.

Services

- At Illinois State University 2006 ~ 2013
 1. School Faculty Status Committee 2009 ~ 2013
 2. Coach of ACM Programming Competition Teams 2011 ~ 2012
 3. CAST Curriculum Committee 2011 ~ 2012
 4. Curriculum Committee 2008 ~ 2012
 5. Curriculum Committee (Chair) 2008 ~ 2009
 6. ABET Assessment Committee 2008 ~ 2009
 7. Recruitment and Retention Committee 2011 ~ 2012
 8. Director Search Committee 2009 ~ 2010
 9. Faculty Search Committee 2007 ~ 2008
 10. Scholarship Committee 2007 ~ 2008
 11. Travel Committee 2006 ~ 2007
- At Lamar University 2002 ~ 2006
 1. The ACM Programming Competition Team 2003 ~ 2005
 2. Study Abroad Committee 2003 ~ 2006

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| 3. Textbook for CS1/CS2 Committee, Chair | 2003 ~ 2004 |
| 4. Research Enhancement Committee | 2004 ~ 2005 |
| 5. Discrete Mathematics Committee, Chair | 2004 ~ 2005 |
| 6. The Consult of the College of Arts and Sciences | 2004 ~ 2005 |
| 7. Retention Committee, Chair | 2003 ~ 2004 |
| ■ Professional Organizations and other Activities Outside the Campus | |
| 1. ACM, Professional member | 2001 ~ present |
| 2. Int. Society for Computer and Their Applications, member | 2005 ~ present |
| 3. Association of Computability in Europe | 2006 ~ present |
| 4. SIGACT (SIG in Algorithms and Computing Theory) | 1992 ~ present |
| 5. SIGCSE (SIG in Computer Science Education) | 2004 ~ present |
| 6. WCC (World Computer Conference) | 2004 ~ 2005 |
| 7. NATPA | 2001 ~ present |
| <p>NATPA (North America Taiwanese Professors' Association) is the largest and the most privileged association for Taiwanese professors in North America. Currently, there are more than 400 activate members in the association.</p> | |
| 8. NATPA, Direct Board member | 2007 ~ 2009 |
| 9. NATPA, Young Scholar Program Committee, Chair | 2007 ~ 2011 |
| 10. NATPA, Information Technology Committee, Chair | 2005 ~ 2011 |