

Chung-wei Lee

Department of Computer Science
University of Illinois at Springfield
One University Plaza, MS UHB 3100
Springfield, IL 62703-5407
(217) 206-7329 • Email: CLee84@uis.edu

SUMMARY Chung-wei Lee is an assistant professor in the Department of Computer Science, University of Illinois at Springfield. He is interested in computer/network security, wireless networking, and mobile computing. Dr. Lee has taught courses related to his research, including wireless security, wireless and mobile networks, networked multimedia systems, and advanced computer networks. His achievement in research and teaching has resulted in grants/awards from US federal agencies such as National Science Foundation (NSF) and Department of Education.

EDUCATION

Ph.D. in Computer and Information Science and Engineering, August 2001
University of Florida, Gainesville, Florida, USA

M.S. in Computer Science and Information Engineering, June 1994
National Taiwan University, Taipei, Taiwan

B.S. in Electrical Engineering, June 1987
National Tsing Hua University, Hsinchu, Taiwan

PROFESSIONAL EXPERIENCE

Assistant Professor, Aug. 2006 – present
Department of Computer Science
University of Illinois at Springfield, Springfield, Illinois, USA

Assistant Professor, Aug. 2001 – Aug. 2006
Department of Computer Science and Software Engineering
Auburn University, Auburn, Alabama, USA

Research Assistant, May 1996 – Aug. 2001
Department of Computer and Information Science and Engineering
University of Florida, Gainesville, Florida, USA

Research Assistant, Jul. 1992 – Jun. 1994
Communication and Multimedia Laboratory
National Taiwan University, Taipei, Taiwan

TEACHING

- University of Illinois at Springfield (Fall 2006 – Present)
 - *CSC570 Wireless Security (graduate level)* in Fall 2008
 - *CSC570 Wireless/Mobile Networks (graduate level)* in Fall 2006, Spring 2007, Fall 2007, Spring 2008, Fall 2008
 - *CSC570 (Online) Wireless/Mobile Networks (graduate level)* in Fall 2006, Fall 2007, Spring 2008, Fall 2008
 - *CSC570 Networked Multimedia Systems (graduate level)* in Spring 2007, Fall 2007
- Auburn University: taught 27 courses from Fall 2001 to Summer 2006

RESEARCH GRANTS (FUNDED)

- Principle Investigator, “CSR---EHS: Secure Real-Time Communication for Networked Embedded Video Systems,” National Science Foundation (NSF), CNS-0737926, total amount \$80,000, 6/13/2007 – 7/31/2009.
- Co-Principle Investigator, “Graduate Fellowships in Wireless Technology – Graduate Assistance in Area of National Need (GAANN) Program,” US Department of Education, total amount \$491,910 (\$393,552 Federal, \$98,358 Auburn University), 8/16/2003 – 8/15/2006.
- Principle Investigator, Graduate Research Assistantship (50% support), Auburn University Wireless Engineering Research and Education Center (WEREC), total amount ≈ \$36,000, 5/16/2002 – 8/15/2004.
- Principle Investigator, “Altruistic and Multi-Path QoS Routing for Multimedia Communication,” Auburn University Competitive Research Grant, total amount \$10,000, 5/1/2002 – 12/31/2003.

PUBLICATIONS

Refereed Journal Articles Published

1. Chung-wei Lee, Jonathan C.L. Liu, Kun Chen, Yu-Chee Tseng, and S.P. Kuo, "System Study of the Wireless Multimedia Ad-hoc Network based on IEEE 802.11g", *International Journal of Security and Its Applications*, No. 2, Vol. 2, pp. 23-40, April 2008.
2. Chung-wei Lee, Randy Chow, Jonathan Liu, “Enhancing Aggregate QoS for Video Streaming,” *Computer Communications*, Vol. 28/18, pp. 2133-2145, 2005.
3. Jyh-haw Yeh, Wei Zhang, Wen-chen Hu, and Chung-wei Lee, “Design and Simulation of a Supplemental Protocol for BGP,” *Computer Networks*, Vol. 49, No. 2, pp. 172-200, 2005.
4. Wen-Chen Hu, Jyh-haw Yeh, Hung-Ju Chu, and Chung-wei Lee, “Internet-Enabled Mobile Handheld Devices for Mobile Commerce,” *Contemporary Management Research*, 1(1):13-34, 2005.
5. Jyh-haw Yeh and Chung-wei Lee, “An Algorithm to Extend Hierarchical Key Assignment Schemes to Enforce a Richer Set of Access Policies,” *International Journal of Education and Information Technologies*, Volume 1, No. 1, 2004.
6. Wen-Chen Hu, Xuli Zong, Chung-wei Lee, and Jyh-haw Yeh, “World Wide Web Usage Mining Systems and Technologies,” *Journal of Systemics, Cybernetics and Informatics*, 1(4), 2003.

Book and Book Chapters Published/Accepted

7. Chung-wei Lee, Weidong Kou, and Wen-Chen Hu, “Mobile Commerce Security and Payment,” Accepted for publication in Margherita Pagani, editor, *Encyclopedia of Multimedia Technology and Networking*, Idea Group Publishing, 2005.
8. Wen-Chen Hu, Chung-wei Lee, Weidong Kou, editors, *Advances in Security and Payment Methods for Mobile Commerce*, Idea Group Publishing, 2005. (book edited)
9. Chung-wei Lee, Weidong Kou, and Wen-Chen Hu. “Mobile Commerce Security and Payment Methods,” In *Advances in Security and Payment Methods for Mobile Commerce*, pages 1-18, Idea Group Publishing, 2005.
10. Wen-Chen Hu, Hung-Jen Yang, Chung-wei Lee, and Jyh-haw Yeh, “A Technical Perspective of World Wide Web Usage Mining,” Accepted for publication in John Wang, editor, *Encyclopedia of Data Warehousing and Mining*, CyberTech Publishing, 2005.
11. Jyh-haw Yeh, Wen-Chen Hu, and Chung-wei Lee, “Security Issues and Their Possible Countermeasures for a Mobile Agent Based Mobile Commerce,” In *Advances in Security and Payment Methods for Mobile Commerce*, pages 140-163, Idea Group, Inc., 2005.

12. Wen-Chen Hu, Jyh-haw Yeh, Hung-Jen Yang, and Chung-wei Lee, "Mobile Handheld Devices for Mobile Commerce," Accepted for publication in Mehdi Khosrow-Pour, editor, *Encyclopedia of E-Commerce, E-Government and Mobile Commerce*, Information Science Publishing, 2005.
13. Chung-wei Lee, Wen-Chen Hu, and Jyh-haw Yeh, "Mobile Commerce Technology," In Mehdi Khosrow-Pour, editor, *Encyclopedia of Information Science and Technology*, Vol. I-V, pages 1967-1972, IIRM Press, 2004.
14. Wen-Chen Hu, Hung-Jen Yang, Jyh-haw Yeh, and Chung-wei Lee, "World Wide Web Search Technologies," In Mehdi Khosrow-Pour, editor, *Encyclopedia of Information Science and Technology*, Vol. I-V, pages 3111-3117, IIRM Press, 2004.
15. Wen-Chen Hu and Chung-wei Lee, and Jyh-haw Yeh. Mobile Commerce Systems. In Nansi Shi, editor, *Mobile Commerce Applications*, pages 1-23, Idea Group Publishing, 2004.

Refereed Conference Proceedings and Other Articles Published

16. Lei Chen and Chung-wei Lee, "The Effects of Mobility and Redundancy on Wireless Video Streaming over MANETs," accepted for publication in *Proceedings of the workshop on Heterogeneous Wireless Networks in the IEEE 22nd International Conference on Advanced Information Networking and Applications (AINA 2008)*, Okinawa, Japan, Mar. 25-28, 2008.
17. Chung-wei Lee, Jonathan Liu, Kun Chen, Yu-Chee Tseng, and S.P. Kuo, "Supporting Multimedia Communication within An 802.11g Ad-hoc Network," in *Proceedings of the workshop on Wireless Ad Hoc, Mesh and Sensor Networks in the IEEE International Conference on Future Generation Communication and Networking (FGCN 2007)*, Vol. II, pp. 396-401, Jeju-Island, Korea, Dec. 6-8, 2007.
18. Wen-Chen Hu, Lixin Fu, Weihong Hu, and Chung-wei Lee, "Palm OS and Programming for Mobile Commerce," in *Proceedings of the Mobile Computing and Commerce Track of Information Resources Management Association International Conference*, Vancouver, British Columbia, Canada, May 19-23, 2007.
19. Lei Chen, Chung-wei Lee, and Jyh-haw Yeh "Density-based Multipath Secure Communication over Mobile Ad Hoc Networks," In *Proceedings of the ACM Southeast Conference*, Melbourne, Florida, March 10-12, 2006.
20. Lei Chen, Chung-wei Lee, and Wen-Chen Hu, "Gene Intrusion on a Society of Hill-Climbers," In *Proceedings of the ACM Southeast Conference*, Melbourne, FL, March 10-12, 2006.
21. Wen-Chen Hu, Jyh-haw Yeh, Yapin Zhong, and Chung-wei Lee, "Client-side handheld computing and Java 2 Platform, Micro Edition (J2ME)," In *Proceedings of the 39th Annual Midwest Instruction and Computing Symposium (MICS 2006)*, Mount Pleasant, Iowa, April 7-8, 2006.
22. Lei Chen and Chung-wei Lee, "Neighbor Stability Routing in MANETs," In *Proceedings of the IEEE Wireless Communications and Networking Conference (WCNC)*, New Orleans, LA, March 13-17, 2005.
23. Lei Chen and Chung-wei Lee, "Multi-level Secure Video Streaming over SRTP," In *Proceedings of the ACM Southeast Conference*, Kennesaw, GA, March 18-20, 2005.
24. Wen-Chen Hu, Jyh-haw Yeh, and Chung-wei Lee, "Handheld Devices Computing and Payment Methods for Mobile Commerce," In *Proceedings of the 38th Annual Midwest Instruction and Computing Symposium*, Eau Claire, Wisconsin, April 8-9, 2005.
25. Rajiv Nekkanti and Chung-wei Lee, "Trust Based Adaptive on Demand Ad Hoc Routing Protocol," *Proceedings of the ACM Southeast Conference 2004*, Huntsville, AL, April 2-3, 2004.
26. Chung-wei Lee and Hong Xie, "Performance Comparison of H.323 and SIP-based VoIP Call Setup over Wireless Communication Channels," *Proceedings of the 7th World Multiconference on Systemics, Cybernetics and Informatics*, Orlando, Florida, July 27-30, 2003.

27. Ju Wang, Jonathan Liu, and Chung-wei Lee, "Multimedia Traffic Scheduling in WCDMA Uplink with Dynamic Spreading," *Proceedings of the 7th World Multiconference on Systemics, Cybernetics and Informatics*, Orlando, Florida, July 27-30, 2003.
28. Ju Wang, Jonathan Liu, and Chung-wei Lee, "Towards Low Partition Overhead in Image Decomposition," *Proceedings of the 7th World Multiconference on Systemics, Cybernetics and Informatics*, Orlando, Florida, July 27-30, 2003.
29. Jyh-haw Yeh, Chung-wei Lee, and Wen-Chen Hu, "Protecting Internet public information integrity during transmission," *Proceedings of the 4th International Conference of Internet Computing*, Las Vegas, Nevada, June 23-26, 2003.
30. Chung-wei Lee, Wen-Chen Hu, and Jyh-haw Yeh, "A System Model for Mobile Commerce," *Proceedings of the 23rd IEEE International Conference on Distributed Computing Systems Workshops (ICDCSW'03) (International Workshop on Multimedia Network Systems and Applications)*, Providence, Rhode Island, May 19-22, 2003.
31. Hong Xie, Chung-wei Lee, Jyh-haw Yeh, "SIP-Based VoIP Call Setup Delay Measurement and Performance Optimization over Wireless Links," *Proceedings of the 41th Annual ACM Southeast Conference*, Savannah, Georgia, March, 2003.
32. Jyh-haw Yeh, Wei Zhang, Chung-wei Lee, and Wen-chen Hu, "A supplement protocol for BGP-source policy route discovery," *Proceedings of the 41st Annual ACM Southeast Conference*, Savannah, Georgia, March 7-8, 2003.
33. Chung-wei Lee and Jyh-haw Yeh, "A Real-Time Multimedia Medical Information System in Mobile Environment," In *Proceedings of the 6th World Multiconference on Systemics, Cybernetics and Informatics*, Orlando, Florida, July 14-18, 2002.
34. Jyh-haw Yeh and Chung-wei Lee, "A New Routing Strategy by Prediction for Internetwork Domain Communication," In *Proceedings of the 6th World Multiconference on Systemics, Cybernetics and Informatics*, Orlando, Florida, July 14-18, 2002.
35. Randy Chow, Chung-wei Lee, Jonathan C.L. Liu, "Traffic Dispersion Strategies for Multimedia Streaming" In *Proceedings of the 8th IEEE Workshop on Future Trends of Distributed Computing Systems (FTDCS'2001)*, Bologna, Italy, Oct. 31-Nov. 2, 2001.
36. Chung-wei Lee, Jonathan C.L. Liu, Randy Chow, and Richard Newman, "Altruistic QoS Routing with Multimedia Dispersion," In *Proceedings of 2001 IEEE International Conference on Multimedia and Expo (ICME2001)*, Tokyo, Aug. 2001.
37. Chung-wei Lee, "Altruistic QoS Routing and Multi-Path Multimedia Communication," Ph.D. dissertation, University of Florida, Gainesville, Florida, August 2001.
38. Chung-wei Lee, Jonathan C.L. Liu, Randy Chow, and Richard Newman, "An Altruistic QoS Routing for Multimedia Communications," In *Proceedings of 2001 International Symposium on Intelligent Multimedia, Video & Speech Processing (ISIMP2001)*, Hong Kong, May 2001.
39. Chung-wei Lee, Randy Chow, and Richard Newman, "A QoS Routing Model for Active Networks," In *Proceedings of the Fifth Joint Conference on Information Sciences*, Atlantic City, NJ, Feb. 2000, pp. 359-362.
40. I.C. Chang, W.H. Tseng, Y.M. Huang, T.J. Yang, H.M. Shiu, Y. Cheng, W.R. Deng, C.-W. Lee and J.H. Huang, "The Design and Implementation of a CSCW System," In *Proc. of 1994 HD-Media Technology and Applications Workshop*, Taipei, Oct. 1994, pp. OA2-36-OA2-41.
41. Chung-wei Lee, "Design and Implementation of Virtual-X Agents in Multimedia Computer Supported Cooperative Work (CSCW)," Master thesis, National Taiwan University, Taiwan, June 1994.
42. J.H. Huang, C.C. Yang, W.H. Tseng, C.-W. Lee, L.Q. Chuen, B.J. Chao, and W.J. Liu, "Design and Implementation of Multimedia Conference System on Broadcast Networks," In *Proceedings of the 18th Conference on Local Computer Networks*, Minneapolis, Sep. 1993, pp. 337-341.

RESEARCH PROJECTS

- Multimedia System/Streaming/Security
 - Designed and implemented light-weight secure video streaming mechanisms for wireless devices in mobile ad hoc networks.
 - Analyzed and measured SIP-based VoIP performance using ns-2 simulator.
 - Designed and implemented four MPEG video stream dispersion schemes and analyzed their performance using simulation tools.
 - Conducted research on real-time delivery of multimedia stream over QoS-capable networks.
 - Designed and implemented a multimedia Computer Supported Cooperative Work (CSCW) system (using UNIX, TCP/IP, X Window).
 - Designed and implemented a videoconferencing system (using CCD camera, Parallax board).
 - Designed and implemented a packet-phone/shared-white-board system (using Ethernet, FDDI, digital board).
- Mobile Commerce
 - Investigated handheld devices computing and payment methods.
 - Conducted research on mobile commerce security and payment systems.
- Wireless Networking/Security
 - Designed a routing mechanism to enhance multimedia traffic performance over wireless mobile ad hoc networks.
 - Designed a secure routing scheme over wireless mobile ad hoc networks.
- Quality of Service (QoS) Routing
 - Conducted research on unicast, multicast, and multi-path QoS routing algorithms and protocols.
 - Developed an altruistic QoS routing scheme for better network utilization in terms of reducing blocking probability.
 - Implemented and analyzed the performance of QoS routing schemes using simulation tools.
- Active/Programmable networks
 - Designed a routing model for multimedia transmission in active networks. Investigated models, architectures, implementations, performance, and security issues of active networks. This research work has led to research funding from NSA.
- Security systems
 - Set up and maintained a nation-wide (Florida ↔ California) firewall testbed in cooperation with Gemini, Inc. (the creators of the first A-1 certified operating system, GEMSOS); enhanced it with the Kerberos authentication system; and supported its application in interdomain authentication and authorization.

SERVICES

Department/University Service

- Served on UIS Academic Technology Committee (Fall 2007 – Present).
- Served on UIS Technology Day (2008) Committee (Fall 2007 – Present).
- Served on UIS System Integrator Search Committee (Fall 2007 – Present).
- Served as the chair of by-law committee in the Department of Computer Science, University of Illinois at Springfield (August 2006 – present).
- Served on the personnel committee in the Department of Computer Science, University of Illinois at Springfield (August 2006 – present).
- Served as graduate faculty in the Department of Computer Science, University of Illinois at Springfield (August 2006 – present).
- Served on computer science faculty search committee (Fall 2007 – Present).

- Served as UIS supervisor for Adam Zupan's Applied Study (AST) (Spring 2007).
- Served as the research advisor/supervisor of Jayachandra Gullapalli (UIS graduate research assistant) (Fall 2007 – Present).
- Served on E-Day Committee in the Department of Computer Science and Software Engineering, Auburn University (August 2001 – August 2006).
- Outside reader appointed by Auburn University Graduate School for the Ph.D. dissertation: "Intrusion Resilient Digital Signature Key security in Mobile/Wireless Networks" (May 2003).
- Outside reader appointed by Auburn University Graduate School for the Ph.D. dissertation: "Improved Authentication Methods with Reduced Communication Overhead for Wireless Inter-Network Roaming" (May 2005).

Outreach Courses Taught

- Comp7326 Advanced Computer Networks (Spring 2004, Spring 2003); 8 outreach students.
- Comp7356 Multimedia Networking (Fall 2003, Fall 2002); 10 outreach students.

Professional Society Activities

- Served on the International Program Committee for the International Conferences on Wireless and Optical Communications (WOC 2008).
- Served on the International Program Committee for the IASTED International Conference on Communications Systems and Applications (CSA 2007).
- Served on the International Program Committee for the International Conferences on Wireless and Optical Communications (WOC 2007).
- Served on the program committee for the Midwest United States Association for Information Systems Conference, 2007.
- Served on the International Program Committee for the IASTED International Conference on Communications Systems and Applications (CSA 2006), Banff, Canada, July 3-5, 2006.
- Served on the International Program Committee for the IASTED International Conference on Communications Systems and Applications (CSA 2005), Banff, Canada, July 19-21, 2005.
- Served on the Program Committee of the 2005 Information Resources Management Association (IRMA) International Conference, San Diego, CA, USA, May 15-18, 2005.
- Served on the International Program Committee for the IASTED International Conference on Communications Systems and Applications (CSA 2004), Banff, Canada, July, 2004.
- Served on Technical Program Committee of The International Workshop on Applications of Ad Hoc Networks (AANET 2003)
- Review Tasks
 - International Journal of Ad Hoc and Ubiquitous Computing.
 - Conference on Communications Systems and Applications (CSA 2007).
 - Conferences on Wireless and Optical Communications (WOC 2007).
 - Conference on Communications Systems and Applications (CSA 2006).
 - The 30th Annual International Computer Software and Applications Conference (COMPSAC 2006).
 - Draft of a multimedia textbook for Thomson Course Technology.
 - The 2nd IEEE International Workshop on Mobile Commerce and Services.
 - Conference on Communications Systems and Applications (CSA 2005).
 - Conference on Communications Systems and Applications (CSA 2004).
 - ACM SIGMOBILE periodical, Mobile Computing & Communications Review (MC2R).
 - Computer Networking Course review for McGraw Hill.
 - Textbook "Data Communications and Networking (third edition)", McGraw Hill.

- Encyclopedia of Multimedia Technology and Networking. Idea Group Publishing.
- IEEE International Conference on Communications (ICC 2004)
- Conference on Communications Systems and Applications (CSA 2004)
- Encyclopedia of Information Science and Technology, Editor: Mehdi Khosrow-Pour, Idea Group Publishing.
- IEEE INFOCOM 2003.
- ICOIN 2003.
- Draft of a networking textbook for Oxford University Press.

RELEVANT COURSE PROJECTS

- Mobile Computing
 - Wireless TCP implementation and comparison (using Linux, Mobile IP, and wireless LAN).
 - Literature survey of Quality of Service (QoS) in mobile networks.
- Operating System Principles
 - Reader/Writer (using thread, monitor, semaphore, shared memory facilities of Sun UNIX).
 - Virtual network news server (using socket and RPC facilities of Sun UNIX).
- Database Management Systems
 - Virtual car dealer management system (using embedded SQL and Sybase)
- Programming Language Principles: PL0 compiler (using Java).
- Artificial Intelligence Concepts: A board game "Maxit" (using Lisp)
- Computer Architecture: 16-bit DFT processor ASIC design at behavior level (using VHDL)

COMPUTER SKILLS

- Network: TCP/IP, QoS, MPLS, RSVP, RTP, Wireless TCP, Mobile IP, Linux kernel.
- Security: IP Security, Gemini firewall systems, Kerberos system.
- Languages: C/C++, Java, SQL, Pascal, Fortran, Basic, Lisp, Prolog, Assembly (386/486).
- Platforms: Linux, UNIX (SunOS/Solaris), MS-Windows, DOS, Mac OS.

HONORS AND AWARDS

- US National Science Foundation (NSF) award number CNS-0737926, project title: "CSR---EHS: Secure Real-Time Communication for Networked Embedded Video Systems," 2007-2009.
- US Department of Education grant for "Graduate Fellowships in Wireless Technology – Graduate Assistance in Area of National Need (GAANN) Program," 2003-2006.
- Auburn University Competitive Research Grant for "Altruistic and Multi-Path QoS Routing for Multimedia Communication," 2002-2003.
- Auburn University Wireless Engineering Research and Education Center for graduate research assistantship, 2002-2004.
- Best Paper Award in the 6th World Multi-conference on Systemics, Cybernetics and Informatics, Orlando, Florida, USA, 2002.
- Republic of China Veterans Dependent Graduate Study Award, Taipei, Taiwan, 2000.
- Ministry of Education Graduate Student Award, National Taiwan University, Taipei, Taiwan, 1992-1994.