

# XIAO SU

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## EDUCATION

- Ph.D. in Computer Science, University of Illinois at Urbana-Champaign, 2001
- M.S. in Computer Science, University of Illinois at Urbana-Champaign, 1997
- B.S. in Computer Science & Engineering, Zhejiang University, P.R.China, 1994

## PROFESSIONAL EXPERIENCE

- **Professor** (*2011 - present*)  
Computer Engineering Department, San José State University
- **Associate Professor** (*2007 - 2011*)  
Computer Engineering Department, San José State University
- **Assistant Professor** (*2002 - 2007*)  
Computer Engineering Department, San José State University
- **Senior Software Engineer** (*Aug. 2001 - July 2002*)  
Media-IXT Group, Inktomi Corporation

## RESEARCH INTERESTS

- networking protocol design and paradigms
- multimedia communications
- cloud computing
- security in distributed systems

## COURSES TAUGHT

- Algorithms and Data Structure Design
- Computer Networks I
- Multimedia Networking: Applications and Protocols
- Network Security
- Network Programming and Application
- Network Architecture and Protocols I
- Mobile Software Development

## AWARDS

- NSF CAREER Award, 2006-2013.
- Applied Materials Faculty Award for Excellence in Teaching, San José State University, 2012.
- College of Engineering Faculty Award for Excellence in Scholarship, San José State University, 2010.
- Excellent Graduating Student Award, Zhejiang Province, 1994.
- Presidential Award of Zhejiang University, 1993.
- First-class scholarship, Zhejiang University, 1991-1994.

## GRANTS

- Faculty participant, Team for Research in Ubiquitous Secure Technology (TRUST), NSF, 2005-2015.
- PI, "CAREER: Integrated Coding and Content Delivery for Secure Media Streaming on P2P Networks," NSF, \$400K, 2006-2013.
- Co-PI, "Integrated Approaches for Airport Surface Traffic Optimization under Uncertainties," NASA, \$1500000, 2008-2010.
- PI with J. Gao and D. Hung, "CMPE Lab Upgrading and Refreshing for Future Needs," \$68,418, San José State University, 2010.
- PI, "Intrusion Detection and Counter-Attacking Engine," College of Engineering Faculty Development Grant, San José State University, \$15,000 and .2 course release, 2005.
- PI with S. Meldal, D. Hayes, "Information Assurance and Network Security: Curriculum and Infrastructure Enhancement," Intel Corp. (2005), \$44,000.
- California State University research mini-grant, Sep. 2004 - Aug. 2005, \$5000.
- Professional development grant, San José State University (2004), \$2500.
- Senior Personnel with M. Roldan, M. G. Morento, P. Backer, D. David, and W. Yu, "Community-Based Technology and Learning Innovation," HP Corp. (2004), \$112,000.
- Co-PI with P. Hsu, M. Roldan, D. David, R. Gliner, E. Moriarty, "EPICS Program at SJSU," NSF via Purdue EPICS center (2004), \$112,000.
- Professional development grant, San José State University (2003), \$2500.
- Co-PI with P. Backer, M. G. Moreno, M. Roldan, T. Hill, M. Solt, and W. D. Yu, "Problem-Based Learning Through Mobile Technology," HP Corp. (2003), \$230000.
- Co-PI with J. Gao, W. D. Yu, S. Shim and M. Fayad, "Learning and Using Wireless Networks and Technology Anytime and Anywhere," Intel Corp. (2003), \$44000.
- PI, "Enhancing E-Learning Through Peer-to-Peer Media Streaming," Junior Faculty Career Development Grant, San José State University (2003), .2 release and \$1000.
- Professional development grant, San José State University (2002), \$2500.

## PROFESSIONAL ACTIVITIES

- Finance Co-Chair, IEEE Int'l Conf. on Multimedia and Expo (ICME), 2013.
- Editorial Board Member, Journal of Computers, Academy Publisher, 2011 – present.
- Co-Chair, Int'l Symposium on Multimedia over Wireless, in conjunction with IEEE Int'l Wireless Communications and Mobile Computing Conference, Chania, Crete Island, Greece, Aug. 6-8, 2008.
- Track Chair, the 20th Int'l Conf. on Software Engineering and Knowledge Engineering, Redwood City, San Francisco Bay, July 1-3, 2008.
- Publicity Chair, the International Symposium on Applications and the Internet (SAINT), Trento, Italy, Jan.31 - Feb.4, 2005.

- Publication Chair, the 10th Int'l Conf. on Parallel and Distributed Systems (ICPADS), Newport Beach, California, July 7-9, 2004.
- NSF Panel Reviewer, Division of Computer and Network Systems, 2006.
- Technical Program Committee member, the 6th IEEE International Symposium on Service-Oriented System Engineering, Irvine, Dec. 12-14, 2011.
- Technical Program Committee member, the 22nd International Conference on Software Engineering and Knowledge Engineering, Redwood City, July 1-3, 2010.
- Technical Program Committee member, the 6th Int'l Workshop on Mobile Commerce and Services, Taiwan, May 10-14, 2010.
- Technical Program Committee member, the 5th Int'l Workshop on Mobile Commerce and Services, Qingdao, China, June 4-6, 2009.
- Technical Program Committee member, the 20th Int'l Conf. on Software Engineering and Knowledge Engineering, Redwood City, San Francisco Bay, July 1-3, 2008.
- Technical Program Committee member, 1st IEEE Int'l Workshop on Engineering Mobile-based Software and Applications, Beijing, China, July 24-27, 2007.
- Technical Program Committee member, IEEE Int'l Conf. on Multimedia and Expo (ICME), 2004, 2005, 2007.
- Technical Program Committee member, the 3rd IEEE Int'l Workshop on Mobile Commerce and Wireless Services, 2005, 2006, 2007, 2008.
- Technical Program Committee member, IEEE Int'l Symposium on Multimedia, San Diego, Dec. 11-13, 2006.
- Technical Program Committee member, the IEEE Int'l Conf. on Communications (ICC), Multimedia Communications and Home Networking Symposium, 2004, 2005.
- Reviewer for IEEE Transactions on Circuits and Systems for Video Technology, IEEE Transactions on Multimedia, IEEE Transactions on Reliability, IEEE Journal on Selected Areas in Communications, World Wide Web Journal, IEEE Computer, EURASIP Journal on Applied Signal Processing, IEEE Int'l Conference on Communications 2005, IEEE Int'l Workshop on Mobile Commerce and Services 2005, Networking 2005, IEEE Int'l Conf. on Networks 2004, and IEEE INFOCOM 2003.

## **SOCIETY MEMBERSHIP**

- Senior Member of IEEE (since 2008)
- Senior Member of the ACM (since 2008)

## **JOURNAL PUBLICATIONS**

- M. Tang and X. Su, “Media Cloud: When Media Revolution Meets Rise of Cloud Computing,” *International Journal of Software and Informatics*, (accepted to appear), 2013.
- W. Yu, X. Su and J. Hansen, “A Smartphone Design Approach to User Communication

Interface for Administering Storage System Network,” *Network Protocols and Algorithms, Special Issue on 2nd Smart Communication Protocols and Algorithms*, volume 4, no. 4, pp. 126-155, 2012

– X. Su, Y. Bai and S. K. Dhaliwal, “Optimal File Distribution in Practical Mesh-Based Overlay Networks,” *Journal of Communications*, Academy Publisher, volume 5, no. 9, pp. 703-714, Oct 2010.

– X. Su and S. K. Dhaliwal, “Incentive Mechanisms in P2P Media Streaming Systems,” *IEEE Internet Computing*, volume 14, no. 5, pp. 74-81, Sept./Oct. 2010.

– A. Raja and X. Su, “Mobility Handling in MAC for Wireless Ad Hoc Networks,” *Wireless Communications and Mobile Computing*, Wiley, volume 9, pp. 303-311, March 2009.

– X. Su and T. Wang, “Efficient Peer Assignment for Low-Latency Transmission of Scalable Coded Images,” *Journal of Communication and Networks*, volume 10, pp. 79-88, March 2008.

– P. Li, M. Salour, and X. Su, “A Survey of Worm Detection and Containment,” *IEEE Communications Surveys and Tutorials*, vol 10, pp. 20-35, 1st Quarter, 2008.

– X. Su and T. Wang, “Sequence of Linear Programming for Transmission of Fine-Scalable Coded Content in Bandwidth-Limited Environments,” *ACM/Springer Multimedia Systems Journal*, pp. 455-466, June 2006.

– X. Su and B. W. Wah, “Loss Aware Rate Allocations in H.263 Coded Video Transmissions,” *Journal of Circuits, Systems, and Computers*, World Scientific, volume 14, No. 6, pp. 1157-1171, Dec. 2005.

– X. Su, R. Fatoohi and T. Wang, “Optimizing Transmission Time of Scalable Coded Images in Peer-to-Peer Networks,” *ACM/Springer Multimedia Systems Journal*, pp. 413-421, Aug. 2005.

– X. Su, Y. Shang, T. Wang and Y. Mai, “Delay-Constrained Transmission of Fine Scalable Coded Content over P2P Networks,” *Signal Processing: Image Communications*, Elsevier Science, volume 20, pp. 21-37, Jan. 2005.

– X. Su and B. W. Wah, “Reconstruction-Based Subband Image Coding for UDP Transmissions over the Internet,” *Journal of VLSI Signal Processing*, pp. 29-48, May-June, 2003.

– X. Su and B. W. Wah, “Multi-Description Video Streaming with Optimized Reconstruction-Based DCT and Neural-Network Compensations,” *IEEE Trans. on Multimedia*, pp. 123-131, March, 2001.

– T. Wang, X. Su and R. Yu, “Restoration of MRF textured images using neural networks,” *Chinese Journal of Computers*, Vol 18, pp. 839-848, Nov 1995.

## **CONFERENCE PUBLICATIONS**

– P. Panchal, N. M. Ramaswamy, X. Su, and Y. Dong, “Content Delivery Networks in the Cloud with Distributed Edge Servers,” *Proc. 15th IEEE Int’l Conf. on High Perform-*

- mance Computing and Communications*, (accepted to appear), Nov. 2013.
- W. Ding and X. Su, “Proactive Two Way Mobile Advertisement Using a Collaborative Client Server Architecture,” *Proc. 24th Int’l Conf. on Software Engineering and Knowledge Engineering*, July 2012.
  - X. Su, B. Schlinker, Y. Shang, and Z. Ye, “Optimal Media Storage in Federated Cloud Environments,” *Proc. IEEE Workshop on Clouds, Networks, and Data Centers, in conjunction with IEEE Int’l Conf. on Communications*, Jun. 2012.
  - M. Tan and X. Su, “Media Cloud: When Media Revolution Meets Rise of Cloud Computing,” *Proc. 6th IEEE Int’l Symposium on Service-Oriented System Engineering*, Dec. 2011.
  - M. Tan and X. Su, “Maximum Capacity of Heterogeneous P2P Multimedia Streaming Network,” *Proc. IEEE 13th Int’l Conf. on High Performance Computing and Communications*, pp. 246-252, Sep. 2011.
  - Y. Bai, X. Su and D. Su, “A Study of Privacy Control in eHealth 2.0,” *Proc. IEEE International Conference on Computer Science and Information Technology*, June 2011.
  - X. Su, “Optimal Incentive-Based Scheduling of Layered Video Packets in P2P Streaming,” *Proc. 6th Int’l Conf. on Intelligent Computing*, pp. 384-391, Aug. 2010.
  - E. Segura and X. Su, “P2PsecT: Peer-to-peer Security Testbed – A research platform for peer-to-peer security,” *Proc. 22nd Int’l Conf. on Software Engineering and Knowledge Engineering*, pp. 783-786, July 2010.
  - S. Gulrajani, A. Oka and X. Su, “Multi-Tracker Collaboration in Bittorrent Systems,” *Proc. 22nd Int’l Conf. on Software Engineering and Knowledge Engineering*, pp. 117-122, July 2010.
  - S. K. Bavipati and X. Su, “Secure Compressed Domain Watermarking for H.264 Video,” *Proc. 7th Int’l Conf. on Information Technology: New Generations*, pp. 387-391, April 2010.
  - Y. Bai, X. Su and B. Bhargava, “Detection and Filtering Spam over Internet Telephony - A User-behavior-aware Intermediate-network-based Approach,” *Proc. IEEE Int’l Conf. on Multimedia and Expo*, pp. 726-729, June-July 2009.
  - H. Cui, X. Su and W. Shang, “Optimal Dissemination of Layered Videos in P2P-based IPTV Networks,” *Proc. IEEE Int’l Conf. on Multimedia and Expo*, pp. 738-741, June-July 2009.
  - X. Ma and X. Su, “A New TCP Congestion Control Algorithm for Media Streaming,” *Proc. IEEE Int’l Conf. on Multimedia and Expo*, pp. 746-749, June-July 2009.
  - Y. Bai, X. Su and B. Bhargava, “Adaptive Voice Spam Control with User Behavior Analysis,” *Proc. 11th IEEE Int’l Conf. on High Performance Computing and Communications*, pp. 354-361, June 2009.
  - X. Su and L. Chang, “A Measurement Study of PPStream,” *Proc. 3rd Int’l Conf. on Communications and Networking in China*, pp. 1162-1166, Aug. 2008.
  - H. Cui, X. Su and W. Shang, “An Optimal Media Distribution Algorithm in P2P-

- Based IPTV,” *Proc. 3rd Int’l Conf. on Communications and Networking in China*, pp. 360-364, Aug. 2008.
- S. Meldal, K. Gates, R. Smith and X. Su, “Security, Safety, and Privacy - Pervasive Themes for Engineering Education,” *Proc. Int’l Conf. on Engineering Education*, July 2008.
  - J.-Y. Chang and X. Su, “An Evaluation of Transport Protocols in Peer-to-Peer Media Streaming,” *Proc. IEEE Int’l Conf. on Networking, Architecture, and Storage*, pp. 241-247, June 2008.
  - A. Raja and X. Su, “A Mobility Adaptive Hybrid Protocol for Wireless Sensor Networks,” *Proc. 5th IEEE Consumer Communications and Networking Conference*, pp. 692-696, Jan. 2008.
  - X. Su, S. Singh and Y. Bai, “Local Reference with Early Termination in H.264 Motion Estimation,” *Proc. IEEE Int’l Conf. on Multimedia and Expo*, pp. 384-387, July 2007.
  - Y. Bai and X. Su, “A User Driven Transmission Scheme for Voice over IP Applications,” *Proc. IEEE Int’l Conf. on Multimedia and Expo*, pp. 935-938, July 2007.
  - M. Salour and X. Su, “Dynamic Two-Layer Signature-Based IDS with Unequal Databases,” *Proc. 4th Int’l Conf. on Information Technology: New Generations*, pp. 77-82, April 2007.
  - C. Michael and X. Su, “Incorporating a New Hash Function in OpenPGP and SSL/TLS,” *Proc. 4th Int’l Conf. on Information Technology: New Generations*, pp. 556-561, April 2007.
  - A. K. Mahajan, S. Kondayya and X. Su, “Exploiting Reference Frame History in H.264/AVC Motion Estimation,” *Proc. IEEE Asia Pacific Conf. on Circuits and Systems*, pp. 410-413, Dec. 2006.
  - T. Kasemsap, S.-H. Wong and X. Su, “Peer-to-Peer Transmission of JPEG2000 Images,” *Proc. 3rd IEEE Consumer Communications and Networking Conference*, pp. 198-202, Jan. 2006.
  - S. B. Ho and X. Su, “CuMPE: Cluster-Management and Power-Efficient Protocol for Wireless Sensor Networks,” *Proc. Int’l Conf. on Information and Technology: Research and Education*, pp. 60-67, June 2005.
  - F. Yuan and X. Su, “In-Memory Storage and Search System for Event Management in Network Security,” *Proc. Int’l Conf. on Information Technology: Coding and Computing*, pp. 734-739, April 2005.
  - X. Su and T. Wang, “Sequence of Linear Programming for Fine-Scalable Coded Image Transmission with Delay Bound,” *Proc. IEEE Global Telecommunications Conference (Globecom)*, pp. 622-626, Nov. 29 - Dec. 3, 2004.
  - X. Su, Y. Shang and Y. Mai, “Delay-Sensitive Delivery of Scalable Coded Images over Peer-to-Peer Networks,” *Proc. IEEE Int’l Conf. on Multimedia and Expo.*, pp. 1627-1630, June 2004.
  - Y. Mai, R. Upadrashta and X. Su, “J-Honeypot: a Java-Based Network Deception Tool with Monitoring and Intrusion Detection,” *Proc. Int’l Conf. on Information Technology:*

*Coding and Computing*, pp. 804-808, Apr. 2004.

– X. Su and Y. Shang, “Error Concealment of Transform Coded Images with Continuous QoS,” *Proc. Int’l Conf. on Information Technology: Coding and Computing*, pp. 699-703, Apr. 2004.

– X. Su and R. Fatoohi, “Scalable Coded Image Transmissions over Peer-to-Peer Networks,” *Proc. IEEE Int’l Conf. on Multimedia and Expo*, pp. 493-496, July, 2003.

– X. Su, “Loss Aware Rate Allocations in H.263 Coded Video Transmissions,” *Proc. Int’l Conf. on Information Technology: Coding and Computing*, pp. 374-378, Apr. 2003.

– B. W. Wah and X. Su, “Loss Concealments of Subband Coded Images for Real-Time Transmissions in the Internet,” *Proc. IEEE Int’l Conf. on Multimedia and Expo*, pp. 449-452, Aug. 2002.

– B. W. Wah and X. Su, “Coding and Transmission of Subband Coded Images in the Internet,” *Proc. SPIE Multispectral Image Processing and Pattern Recognition (Keynote Address)*, Oct. 2001.

– B. W. Wah, X. Su and D. Lin, “A Survey of Error-Concealment Schemes for Real-Time Audio and Video Transmissions over the Internet,” *Proc. Int’l Symposium on Multimedia Software Engineering*, pp. 17-24, Dec. 2000.

– X. Su and B. W. Wah, “Streaming Video with Optimized Reconstruction-Based DCT,” *Proc. IEEE Int’l Conf. on Multimedia and Expo.*, pp. 271-274, July-Aug. 2000.

– B. W. Wah, D. Lin and X. Su, “Streaming Real-Time Audio and Video Data with Transformation-Based Error Concealment and Reconstruction,” *Proc. First Int’l Conf. on Web Information Systems Engineering*, IEEE, pp. 19-21, June 2000.

– B. W. Wah and X. Su, “Streaming Video with Transformation-Based Error Concealment and Reconstruction,” *Proc. IEEE Int’l Conf. on Multimedia Computing and Systems*, pp. 238-243, June 1999.

– B. W. Wah and X. Su, “An Efficient Multiaccess Protocol for Wireless Networks,” *Proc. Int’l symposium on Internet Technology*, April 1998.

– X. Su, T. Wang and X. Xing, “Binary Image Restoration Using Neural Network Models,” *Proc. IEEE Region 10 Conf. on Computer, Communication, Control and Power Engineering*, pp. 906-909, Oct. 1993.

### **Invited Presentations**

– “First Experiences with DETER in Security Curriculum,” NSF TRUST WISE Institute, June 2012.

– “Hands-on Testbed Experiments in Security Curriculum,” Workshop on Curriculum Development in Security and Information Assurance (CDSIA), May 2011.

– “NUSHU Covert Channel Detection using LZMA Compression,” presentation at 20th ACM Int’l Conf. on Computers, Freedom and Privacy, July 2010.

– “How Attackers Think,” Summer Experience, Colloquium and Research in Information Technology (Secure-IT), Aug. 2008.

– “Challenges in Teaching Network Attacks and Defenses,” Colloquium at California

State University at East Bay, June 2008.

- “Tools in Security Education,” Workshop on Curriculum Development in Security and Information Assurance (CDSIA), April 2008.
- “Research Directions in P2P Media Streaming,” National University of Defense and Technology, Changsha, China, Dec. 2007.
- “Attacks and Defenses,” Summer Experience, Colloquium and Research in Information Technology (SeCure-IT), June 2007.
- “P2P Content Distribution,” Colloquium at Santa Clara University, Jan. 2007.