

VITA

Mihaela van der Schaar

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RESEARCH PROFILE/ INTEREST

- Data Science and Data-driven Decision Making
 - Machine Learning
 - Real-time Stream Mining and Decision Analytics
 - Medical Informatics
 - Personalized Education
- Game Theory and Micro-Economics
 - Strategic Design and Ongoing Interactions
 - Ratings and Social Norms
- Network Science, Societal and Institutional Networks
- Multimedia signal processing, communications and networking
- Multi-user communication networks

EDUCATION

2001 Eindhoven University of Technology, The Netherlands
Ph. D. in Electrical and Computer Engineering
Thesis: System and network constrained scalable video compression

1996 Eindhoven University of Technology, The Netherlands
M.Sc. in Electrical Engineering and Computer Engineering
Thesis: Compression techniques for video and graphics data in TV-applications

1992 Computer Science, Polytechnic University, Romania
Received one of the first 5 TEMPUS scholarships of the European Union for study and research abroad granted to non-communist Romania

EXPERIENCE

ACADEMIC

7/2005 – Present University of California Los Angeles, CA
Chancellor's Professor of Electrical Engineering (since 7/2011)
Founder and Director UCLA Center for Engineering Economics, Learning, and Networks (since 9/2011)

Professor, Electrical Engineering Department (7/2010 – present)
Associate Professor, Electrical Engineering Department (7/2007-6/2010)
Assistant Professor, Electrical Engineering Department (7/2005- 6/2007)

7/2003 – 6/2005 University of California Davis, CA
Assistant Professor, Electrical and Computer Engineering Department

1/2003 – 8/2003 Columbia University New York, NY
Adjunct Assistant Professor, Electrical Engineering Department

- INDUSTRIAL** 11/1998 – 6/2003 Philips Research Briarcliff Manor, NY
Senior Member Research Staff, Wireless Communication and Networking Department
Project leader at Philips Research USA:
- Internet Video Project (2000 – 2002) – project and research leader of a team of 7 researchers
 - Adaptive Video (2002 – June 2003) – project and research leader of a team of 2 researchers
 - Quality-Of-Service for IP Wireless Networks (2002 – June 2003) – project and research leader of a team of 4 researchers
- Representative of Philips Research USA to ISO MPEG-standardization – 1999 - 2004**
- 4/1996 – 10/1998 Philips Research Eindhoven, the Netherlands
Research Scientist, Television Systems Department
- MY RESEARCH IN PRODUCTS**
- System and memory constrained compression algorithm – implemented in Philips DIVA5 MPEG-2 video decoding IC.
 - Embedded compression algorithm for Philips USB PVC camera (Philips received a design award for this camera).
 - 33 patents
- BEST PAPER AWARDS**
- Best Paper Award from IEEE Circuits and Systems Society Darlington Award, April 2011
 - Best Paper Award from Gamenets (Game-Theory for Networks) Conference, April 2011
 - Best Paper Award from IEEE Transactions on Circuits and Systems for Video Technology, April 2006.
 - Most Cited Paper Award from EURASIP Journal Signal Processing: Image Communication between the years 2004-2006
 - Two papers are listed in *Top 100 SPIE Downloads* on Video Compression: 5266-18, 5308-129
- HONORS/ AWARDS**
- Chancellor’s Professor of Electrical Engineering 2011
 - Editor-in-Chief IEEE Trans. On Multimedia (Jan. 2011-Dec. 2013)
 - IEEE Fellow (elected 2010)
 - Distinguished Speaker for IEEE Communications Society – elected for 2011-2012
 - National Science Foundation (NSF) CAREER Award – awarded December 2004
 - Philips “Make a Difference” Award for Outstanding Research Contributions to Philips Research Program (November 2002) – given once annually to a single employee in Philips Research USA
 - IBM Faculty Award 2005, 2007, 2008
 - Exploratory Stream Analytics Innovation Award from IBM Research Watson - 2008
 - Okawa Foundation Award – October 2006
 - ISO Award for Technical Contributions to the MPEG-4 Visual standard (MPEG-4 FGS Profile) (2003)
 - ISO Award for Technical Contributions to the MPEG-4 Visual standard (MPEG-4 Advanced Simple Profile) (December, 2004)
 - ISO Award for Technical Contributions to the MPEG-21 Multimedia framework Part 12: Test-bed for MPEG-21 resource delivery (December, 2005)
 - Elected Technical Committee on Multimedia Signal Processing, IEEE Signal Processing Society (since 2002)
 - Elected Technical Committee on IMDSP, IEEE Signal Processing Society (since 2006)
 - Advisor Multimedia Communication Systems Interest Group (MCSIG)
- CENTERS** Founder and Director of UCLA Center for Engineering Economics, Learning, and Networks (see netecon.ee.ucla.edu)
- EDITORSHIPS**
- **Editor-in-Chief IEEE Trans. On Multimedia (Jan. 2011 – Dec. 2013)**
 - Senior Editorial Board Member of IEEE Journal on Emerging and Selected Topics in Circuits and Systems (JETCAS) (2014 – now)
 - Editorial Board Member of IEEE Journal on Selected Topics on Signal Processing (JSTSP) (2011-2012)
 - Associate Editor for the Signal Processing Magazine – E-letter on Standards and Industry-related news (2007-2008)
 - Associate Editor for IEEE Transactions on Multimedia (2002-2005)
 - Associate Editor for IEEE Transactions on Circuits and Systems for Video Technology (since 2004)
 - Associate Editor for IEEE Signal Processing Letters (2005-2008)
 - Associate Editor for SPIE Journal of Optical Engineering (October 2003-September 2004)

- Associate Editor for E-Newsletter of Signal Processing Society
- Guest Editor, Special issue on “Energy Aware Communications in Wireless Sensor Networks”, International Journal on Distributed Sensor Networks”, Nov. 2014
- Guest Editor, EURASIP Journal on Applied Signal Processing: Special issue on multimedia over IP and wireless networks, 2nd Quarter 2004.
- Guest Editor, Special issue on Cross-layer Optimized Wireless Multimedia Communications, Journal of Advances in Multimedia, 2007.
- Member of the Editorial Board of "Foundation and Trends in Signal Processing" published by Now Publishers (www.nowpublishers.com) (2008-now)

CHAIRING INTERNATIONAL STANDARDS

- Chair of Ad Hoc Group on “MPEG-21 scalable video coding” in MPEG-standardization (November 2002 – January 2005).
- Co-Chair of Ad Hoc Group on “Multimedia streaming test-bed” in MPEG-standardization (November 2002 – January 2005).
- Chair of Ad Hoc Group on “Advanced Fine-Granularity-Scalability” in MPEG-standardization (May 2002– November 2002).
- Co-chair of Ad Hoc Group on “Interframe wavelet coding” in MPEG-standardization (May 2002 – November 2002).
- Co-editor of MPEG-4 FGS standard 14496-2/AMD4.
- Editor of MPEG-4 Video Verification Model for FGS

PATENTS

33 Granted US Patents (see US patents database at <http://www.uspto.gov/patft/index.html>) on Multimedia compression, communications, networking and systems

PUBLICATIONS BOOKS

M. van der Schaar, P. Chou (Ed.), *Multimedia over IP and Wireless Networks*, Academic Press, March 2007

M. van der Schaar, T. Stockhammer, and D. S. Turaga, *MPEG-4 Beyond Conventional Video Coding: Object Coding, Resilience, and Scalability*, Morgan & Claypool Publishers, March 2006.

JOURNAL PAPERS - ACCEPTED & PUBLISHED

Data Science and Data-driven Decision Making, Machine Learning, Real-time Stream Mining and Decision Analytics

1. C. Tekin and M. van der Schaar, "Distributed Online Learning via Cooperative Contextual Bandits," *IEEE Trans. Signal Process.*, vol. 63, no. 14, pp. 3700-3714, 2015. [[Link](#)]
2. L. Song, C. Tekin, and M. van der Schaar, "Online Learning in Large-scale Contextual Recommender Systems," *IEEE Transactions on Services Computing*. [[Link](#)]
3. K. Kanoun, C. Tekin, D. Atienza, and M. van der Schaar, "Big-Data Streaming Applications Scheduling Based on Staged Multi-armed Bandits," to appear in *IEEE Transactions on Computers*, 2016.
4. S. Amuru, R. M. Buehrer, and M. van der Schaar, "Blind Network Interdiction Strategies- A Learning Approach," to appear in *IEEE Transactions on Cognitive Communications and Networking*, 2016. [[Link](#)]
5. L. Canzian, U. Demiryurek, and M. van der Schaar, "Collision Detection by Networked Sensors," *IEEE Transactions on Signal and Information Processing over Networks*, 2015.
6. Y. Meier, J. Xu, O. Atan, and M. van der Schaar, "Predicting Grades," accepted and to appear in *IEEE Transactions on Signal Processing*, 2015. [[Link](#)]
7. B.-G. Kim, Y. Zhang, M. van der Schaar, and J.-W. Lee, "Dynamic Pricing and Energy Consumption Scheduling with Reinforcement Learning," *IEEE Transactions on Smart Grid*, 2015. [[Link](#)]
8. C. Tekin, O. Atan and M. van der Schaar, "Discover the Expert: Context-Adaptive Expert Selection for Medical Diagnosis," *IEEE Transactions on Emerging Topics in Computing*, vol. 3, no. 2, pp. 220-234, June 2015. [[Link](#)]
9. L. Canzian, Y. Zhang, M. van der Schaar, "Ensemble of Distributed Learners for Online Classification of Dynamic Data Streams," *IEEE Trans. on Signal and Information Processing over Networks*, vol. 1, no. 3, 2015. [[Link](#)]
10. L. Canzian and M. van der Schaar, "Timely Event Detection by Networked Learners," *IEEE Transactions on Signal Processing*, vol. 63, no. 5, pp. 1282-1296, Jan. 2015. [[Link](#)]

11. M. Wolf, M. van der Schaar, H. Kim and J. Xu, "Analysis and Decision-Making in Caring Environments for Adults with Special Needs Adults," *IEEE Design & Test, Special Issue on Cyber-Physical systems for Medical Applications*, vol. 32, no. 5, pp. 35-44, 2015. [[Link](#)]
12. J. Xu, C. Tekin, S. Zhang and M. van der Schaar, "Distributed Multi-Agent Online Learning Based on Global Feedback," *IEEE Trans. Signal Process.* vol. 63, no. 9, Feb 2015. [[Link](#)]
13. C. Tekin and M. van der Schaar, "Contextual Online Learning for Multimedia Content Aggregation," *IEEE Trans. Multimedia*, vol. 17, no. 4, pp. 549-561, Feb. 2015. [[Link](#)]
14. C. Tekin and M. van der Schaar, "RELEAF: An Algorithm for Learning and Exploiting Relevance," *IEEE Journal of Selected Topics in Signal Processing, Special Issue on Signal Processing for Big Data*, vol. 9, no. 4, pp. 716-727, June 2015. [[Link](#)]
15. C. Tekin and M. van der Schaar, "Active Learning in Context-Driven Stream Mining with an Application to Image Mining," *IEEE Trans. Image Process.*, vol. 24, no. 11, 2015. [[Link](#)]
16. J. Xu, D. Deng, U. Demiryurek, C. Shahabi and M. van der Schaar, "Mining the Situation: Spatiotemporal Traffic Prediction with Big Data," *IEEE Journal of Selected Topics in Signal Processing, Special Issue on Signal Processing for Big Data*, vol. 9, no.4, pp. 702-715, June 2015. [[Link](#)]
17. L. Song, W. Hsu, J. Xu and M. van der Schaar, "Using contextual learning to improve diagnostic accuracy: application in breast cancer screening," to appear in *IEEE J. Biomedical and Health Informatics*, 2015. [[Link](#)]
18. J. Xu, M. van der Schaar, J. Liu and H. Li, "Forecasting Popularity of Videos using Social Media," *IEEE Journal of Selected Topics in Signal Processing (JSTSP)*, vol. 9, no. 2, pp. 330-343, Nov. 2014. [[Link](#)]
19. S. Ren and M. van der Schaar, "Dynamic Scheduling for Energy Minimization in Delay-Sensitive Stream Mining," *IEEE Transactions on Signal Processing*, vol. 62, no. 20, 2014. [[Link](#)]
20. L. Canzian and M. van der Schaar, "Real-time stream mining: online knowledge extraction using classifier networks," *IEEE Network Magazine, Special Issue on Networking for Big Data*, vol. 29, no. 5, pp. 10-16 Oct. 2015. [[Link](#)]
21. O. Atan, A. Yiannis, C. Tekin, and M. van der Schaar, "Bandit Framework For Systematic Learning In Wireless Video-Based Face Recognition," *IEEE J. Sel. Topics Signal Process.*, vol. 9, no. 1, June. 2014. [[Link](#)]
22. C. Tekin, S. Zhang, and M. van der Schaar, "Distributed Online Learning in Social Recommender Systems," *IEEE Journal of Selected Topics in Signal Processing (JSTSP)*, vol. 8, no. 4, pp. 638-652, Aug. 2014. [[Link](#)]
23. W. Zame, J. Xu and M. van der Schaar, "Cooperative Multi-Agent Learning and Coordination for Cognitive Radio Networks," *IEEE J. Sel. Areas Commun. - Special issue on Cognitive Radio Series*, vol. 32, no. 3, pp. 464-477, Mar. 2014. [[Link](#)]
24. W. Zame, J. Xu and M. van der Schaar, "Winning the Lottery: Learning Perfect Coordination with Minimal Feedback," in *IEEE J. Sel. Topics in Signal Process.*, vol. 7, no. 5, pp. 846-857, Oct. 2013. [[Link](#)]
25. R. Izhak-Ratzin, H. Park, and M. van der Schaar, "Online Learning in BitTorrent Systems", *IEEE Trans. on Parallel and Distributed Systems*, vol. 23, no. 12, pp. 2280-2288, Mar. 2012. [[Link](#)]
26. Y. Su and M. van der Schaar, "Dynamic Conjectures in Random Access Networks Using Bio-inspired Learning," *IEEE J. Sel. Areas Commun.*, vol. 28, no. 4, pp. 587-601, May 2010. [[Link](#)] [[Long version](#)]
27. B. Foo and M. van der Schaar, "A Rules-based Approach for Configuring Chains of Classifiers in Real-Time Stream Mining Systems," *EURASIP Journal on Advances in Signal Processing*, vol. 2009, Article ID 975640, 17 pages, July 2009. [[Link](#)]
28. H. Park, D. S. Turaga, O. Verscheure, and M. van der Schaar, "Foresighted Tree Configuration Games in Resource Constrained Distributed Stream Mining Sensors" *Ad Hoc Networks (Invited Paper to Special Issue: Multimedia Ad Hoc and Sensor Network)*, vol. 9, no. 4, pp. 497-513, June 2011. [[Link](#)]
29. B. Foo, D. Turaga, O. Verscheure, L. Amini, and M. van der Schaar, "Configuring Trees of Classifiers in Distributed Multimedia Stream Mining Systems," *IEEE Trans. on Circuits and Systems for Video Technology*, vol. 21, no. 3, pp. 245-258, Mar. 2011. [[Link](#)]
30. B. Foo and M. van der Schaar, "A Distributed Approach for Optimizing Cascaded Classifier Topologies in Real-Time Stream Mining Systems" *IEEE Trans. Image Process.*, vol. 19, no. 11, pp. 3035-3048, Nov. 2010. [[Link](#)]
31. R. Ducasse, D. Turaga, and M. van der Schaar, "Adaptive Topologic Optimization for Large-Scale Stream Mining" *IEEE Journal of Selected Topics in Signal Process. (JSTSP)*, vol. 4, no. 3, pp. 620-636, June 2010. [[Link](#)]
32. B. Foo, D. Turaga, O. Verscheure, M. van der Schaar, and L. Amini, "Resource Constrained Stream Mining with Classifier Tree Topologies," *IEEE Signal Process. Lett.*, vol. 15, pp. 761-764, Nov. 2008. [[Link](#)]

33. F. Fu, D. Turaga, O. Verscheure, M. van der Schaar, and L. Amini, "Configuring Competing Classifier Chains in Distributed Stream Mining Systems" *IEEE Journal of Selected Topics in Signal Process. (JSTSP)*, vol. 1, no. 4, pp. 548-563, Dec. 2007. [\[Link\]](#)

Game Theory and Micro-Economics, Strategic Design and Ongoing Interactions, Ratings and Social Norms

34. M. van der Schaar, Y. Xiao, W. Zame, "Efficient Outcomes in Repeated Games with Limited Monitoring," *Economic Theory*, vol. 60, no. 1, pp. 1-34, 2015 - Lead article. [\[Link\]](#)

35. Y. Xiao and M. van der Schaar, "Socially-Optimal Design of Service Exchange Platforms with Imperfect Monitoring," *ACM Transactions on Economics and Computation*, vol. 3, no. 4, Jul. 2015. [\[Link\]](#)

36. M. van der Schaar and S. Zhang, "A Dynamic Model of Certification and Reputation," *Economic Theory*, vol. 58, no. 3, pp. 509-541, Oct. 2014. [\[Link\]](#)

37. M. van der Schaar, J. Xu and W. Zame, "Efficient Online Exchange via Fiat Money," in *Economic Theory*, vol. 54, no. 2, pp. 211-248, Oct. 2013. [\[Link\]](#)

38. J. Xu and M. van der Schaar, "Incentive-Compatible Demand-Side Management for Smart Grids based on Review Strategies," *EURASIP Journal on Advances in Signal Processing - Topical collection: Advanced signal processing techniques and telecommunications network infrastructures for Smart Grid analysis, monitoring and management*, 2015. [\[Link\]](#)

39. J. Xu and M. van der Schaar, "Efficient Working and Shirking in Networks," *IEEE JSAC Bonus Issue for Emerging Technologies*, vol. 33, no. 4, pp. 651-662, April 2015. [\[Link\]](#)

40. Y. Zhang and M. van der Schaar, "Collective Ratings for Online Communities with Strategic Users," *IEEE Transactions on Signal Processing*, vol. 62, no. 12, pp. 3069-3083, June 2014. [\[Link\]](#)

41. L. Song, Y. Xiao, and M. van der Schaar, "Demand Side Management in Smart Grids using a Repeated Game Framework," *IEEE J. Sel. Areas Commun., Special issue on Smart Grid Communications Series*, vol. 32, no. 7, pp. 1412-1424, July 2014. [\[Link\]](#)

42. J. Alcaraz and M. van der Schaar, "Coalitional Games with Intervention: Application to Spectrum Leasing in Cognitive Radio," *IEEE Transactions on Wireless Communications*, vol. 13, no. 11, pp. 6166-6179, 2014. [\[Link\]](#)

43. Y. Zhang, J. Park, M. van der Schaar, "Rating Protocols for Online Communities", *ACM Transactions on Economics and Computation*, vol. 2, no. 1, March 2014. [\[Link\]](#)

44. M. Alizadeh, Y. Xiao, A. Scaglione, and M. van der Schaar, "Dynamic Incentive Design for Participation in Direct Load Scheduling Programs," *IEEE Journal of Selected Topics in Signal Processing, Special Issue on Signal Processing in Smart Electric Power Grid*, vol. 8, no. 6, pp. 1111-1126, 2014. [\[Link\]](#)

45. Y. Xiao, W. R. Zame and M. van der Schaar, "Technology Choices and Pricing Policies in Public and Private Wireless Networks," *IEEE Transactions on Wireless Communications*, vol. 13, no. 12, Oct. 2014. [\[Link\]](#)

46. Y. Zhang and M. van der Schaar, "Robust Reputation Protocol Design for Online Communities: A Stochastic Stability Analysis," in *IEEE J. of Sel. Topics in Signal Process.*, vol. 7, no. 5, pp. 907-920, Oct. 2013. [\[Link\]](#)

47. Y. Zhang, M. van der Schaar, "Incentive Provision and Job Allocation in Social Cloud Systems", in *IEEE J. Sel. Areas in Commun* vol. 31, no. 9, pp. 607-617, Sep. 2013. [\[Link\]](#)

48. L. Canzian, Y. Xiao, W. Zame, M. Zorzi, and M. van der Schaar, "Intervention with Private Information, Imperfect Monitoring and Costly Communication," in *IEEE Trans. Commun.*, vol. 61, no. 8, pp. 3192-3205, Aug. 2013. [\[Link\]](#)

49. Y. Xiao, J. Park, and M. van der Schaar, "Repeated Games With Intervention: Theory and Applications in Communications," *IEEE Trans. Commun.*, vol. 60, no. 10, pp. 3123-3132, Oct. 2012. [\[Link\]](#)

50. Y. Zhang and M. van der Schaar, "Peer-to-Peer Multimedia Sharing based on Social Norms", *Elsevier Journal Signal Processing: Image Communication Special Issue on "Advances in video streaming for P2P networks"*, Feb. 2012. [\[Link\]](#)

51. S. Ren and M. van der Schaar, "Pricing and Investment for Online TV Content Platforms," in *IEEE Trans. Multimedia* (special issue: "Smart, social and converged TV"), vol. 14, no. 6, pp 1566-1578, Dec. 2012. [\[Link\]](#)

52. J. Xu and M. van der Schaar, "Social Norm Design for Information Exchange Systems with Limited Observations," in *IEEE J. Sel. Areas Commun. – Special issue on Economics of Communication Networks and Systems*, vol 30, no. 11, pp. 2126-2135, Dec. 2012. [\[Link\]](#)

53. Y. Su and M. van der Schaar, "Structural Solutions for Additively Coupled Sum Constrained Games," in *IEEE Trans. Commun.*, vol. 60, no. 12, pp. 3779-3796, Dec. 2012. [\[Link\]](#)

54. J. Park and M. van der Schaar, "The Theory of Intervention Games for Resource Sharing in Wireless Communications", *IEEE J. Sel. Areas Commun.*, vol. 30, no. 1, pp. 165-175, Jan. 2012. [[Link](#)] [[Click here for more about the intervention framework](#)]
55. Y. Su and M. van der Schaar, "Linearly Coupled Communication Games", *IEEE Trans. Commun.*, vol. 59, no. 9, pp. 2543-2553, Sep. 2011. [[Link](#)]
56. H. Park and M. van der Schaar, "Evolution of Resource Reciprocation Strategies in P2P Networks", *IEEE Trans. Signal Process.*, vol. 58, no. 3, pp. 1205-1218, Mar. 2010. [[Link](#)]
57. H. Park and M. van der Schaar, "On the Impact of Bounded Rationality in Peer-to-Peer Networks," *IEEE Signal Process. Lett.*, vol. 16, no. 8, pp. 675-678, Aug. 2009. [[Link](#)]
58. N. Mastronarde and M. van der Schaar, "Automated bidding for media services at the edge of a content delivery network," *IEEE Trans. on Multimedia*, vol. 11, no. 3, pp. 543-555, Apr. 2009. [[Link](#)]
59. Y. Su and M. van der Schaar, "Conjectural Equilibrium in Multi-user Power Control Games", *IEEE Trans. Signal Process.*, vol. 57, no. 9, pp. 3638-3650, Sep. 2009. [[Link](#)]
60. H. Park and M. van der Schaar, "Coalition based Resource Negotiation for Multimedia Applications in Informationally Decentralized Networks," *IEEE Trans. Multimedia*, vol. 11, no. 4, pp. 765-779, Jun. 2009. [[Link](#)]
61. F. Fu and M. van der Schaar, "Learning to Compete for Resources in Wireless Stochastic Games," *IEEE Trans. Veh. Tech.*, vol. 58, no. 4, pp. 1904-1919, May 2009. [[Link](#)]
62. M. van der Schaar and F. Fu, "Spectrum Access Games and Strategic Learning in Cognitive Radio Networks for Delay-Critical Applications," *Proc. of IEEE, Special issue on Cognitive Radio*, vol. 97, no. 4, pp. 720-740, Apr. 2009. [[Link](#)]
63. J. Park and M. van der Schaar, "Stackelberg Contention Games in Multi-User Networks," *EURASIP Journal on Advances in Signal Process., Special issue on Game Theory in Signal Processing and Communications*, vol. 2009, Article ID 305978, 15 pages, Jan. 2009. [[Link](#)]
64. S. -C. Su and M. van der Schaar, "On the Application of Game-Theoretic Mechanism Design for Resource Allocation in Multimedia Systems," *IEEE Trans. Multimedia*, vol. 10, no. 6, pp. 1197-1207, Oct. 2008. [[Link](#)]
65. H. Park and M. van der Schaar, "Coalition-based Resource Reciprocation Strategies for P2P Multimedia Broadcasting," *IEEE Trans. Broadcast. (Special Issue: Quality Issues in Multimedia Broadcasting)*, vol. 54, no. 3, pp. 557-567, Sep. 2008. [[Link](#)]
66. F. Fu, T. M. Stoenescu, and M. van der Schaar, "A Pricing Mechanism for Resource Allocation in Wireless Multimedia Applications," *IEEE Journal of Selected Topics in Signal Process., Special Issue on Network-Aware Multimedia Process. and Communications*, vol. 1, no. 2, pp. 264-279, Aug. 2007. [[Link](#)]
67. H. Park and M. van der Schaar, "Bargaining Strategies for Networked Multimedia Resource Management," *IEEE Trans. Signal Process.*, vol. 55, no. 7, pp. 3496-3511, Jul. 2007. [[Link](#)]
68. S. Shankar and M. van der Schaar, "Performance Analysis of Video Transmission Over IEEE 802.11a/e WLANs," *IEEE Trans. Veh. Technol.*, vol. 56, no. 4, pp. 2346-2362, July 2007. [[Link](#)]
69. F. Fu and M. van der Schaar, "Noncollaborative Resource Management for Wireless Multimedia Applications Using Mechanism Design," *IEEE Trans. Multimedia*, vol. 9, no. 4, pp. 851-868, Jun. 2007. [[Link](#)]
70. A. Fattahi, F. Fu, M. van der Schaar, and F. Paganini, "Mechanism-Based resource allocation for multimedia transmission over spectrum agile wireless networks," *IEEE J. Sel. Areas Commun.*, vol. 25, no. 3, pp. 601-612, Apr. 2007. [[Link](#)]

Network Science, Societal and Institutional Networks

71. Y. Xiao, F Dorfler, and M. van der Schaar, "Incentive Design in Peer Review: Rating and Repeated Endogenous Matching," to appear in *IEEE Transactions on Network Science and Engineering*, 2016. [[Link](#)]
72. Y. Song and M. van der Schaar, "Dynamic Network Formation with Incomplete Information," *Economic Theory*, vol. 59, no. 2, pp. 301-331, 2015. [[Link](#)]
73. A. Alaa, K. Ahuja, M. van der Schaar, " Self-organizing Networks of Information Gathering Cognitive Agents," *IEEE Transactions on Cognitive Communications and Networking - Inaugural issue*, 2015. [[Link](#)]
74. L. Canzian, K. Zhao, G. C. Wong, M. van der Schaar, "A Dynamic Network Formation Model for Understanding Bacterial Self-Organization into Micro-Colonies," *IEEE Transactions on Molecular, Biological, and Multi-Scale Communications*, vol. 1, no. 1, pp. 76 - 89, 2015. [[Link](#)]

75. C.-K. Yu, M. van der Schaar, and A. H. Sayed, "Information-Sharing over Adaptive Networks with Self-interested Agents," *IEEE Trans. on Signal and Information Processing over Networks*, vol. 1, no. 1, pp. 2-19, Jun. 2015. [\[Link\]](#)
76. N. Mastrorarde, V. Patel, J. Xu, L. Liu, and M. van der Schaar, "To Relay or Not to Relay: Learning Device-to-Device Relaying Strategies in Cellular Networks," in *IEEE Transactions on Mobile Computing*, 2015.
77. J. Xu, Y. Song, and M. van der Schaar, "Sharing in Networks of Strategic Agents," *IEEE J. Sel. Topics Signal Process. - Special issue on "Signal Processing for Social Networks"*, vol. 8, no. 4, pp. 717-731, Aug. 2014. [\[Link\]](#)
78. Y. Zhang and M. van der Schaar, "Strategic Networks: Information Dissemination and Link Formation Among Self-interested Agents," in *IEEE J. Sel. Areas Commun. - Special issue on Network Science*, vol. 31, no. 6, pp. 1115-1123, June 2013. [\[Link\]](#)
79. Y. Zhang and M. van der Schaar, "Information Production and Link Formation in Social Computing Systems," in *IEEE J. Sel. Areas Commun. - Special issue on Economics of Communication Networks and Systems*, vol. 30, no. 10, pp. 2136-2145, Dec. 2012. [\[Link\]](#)
80. J. Park and M. van der Schaar, "A Game Theoretic Analysis of Incentives in Content Production and Sharing over Peer-to-Peer Networks", *IEEE J. Sel. Topics Signal Process.*, vol. 4, no. 4, pp. 704-717, Aug. 2010. [\[Link\]](#)

Other

81. S. Amuru, C. Tekin, M. van der Schaar and M. Buehrer, "Jamming Bandits - A Novel Learning Method for Optimal Jamming," accepted and to appear in *IEEE Transactions on Wireless Communications*, 2016.
82. L. Canzian, M. Zorzi, M. van der Schaar, "Game Theoretic Design of MAC Protocols: Pricing versus Intervention," *IEEE Trans. on Communications*, vol. 63, no. 11, pp. 4287-4303, 2015. [\[Link\]](#)
83. Z. Yuan, J. Xu, Y. Xue, and M. van der Schaar, "Bits Learning: User-adjustable Privacy versus Accuracy in Internet Traffic Classification," accepted and to appear in *IEEE Communications Letters*, 2016. [\[Link\]](#)
84. K. Ahuja, Y. Xiao and M. van der Schaar, "Efficient Interference Management Policies for Femtocell Networks," *IEEE Transactions on Wireless Communications*, vol. 14, no. 9, pp. 4879-4893, Sept. 2015. [\[Link\]](#)
85. K. Ahuja, Y. Xiao and M. van der Schaar "Distributed Interference Management Policies for Heterogeneous Small Cell Networks," *IEEE J. Sel. Areas Commun.*, vol. 33, no. 6, pp. 1112-1126, 2015. [\[Link\]](#)
86. C. Shen, J. Xu and M. van der Schaar, "Silence is Gold: Strategic Interference Mitigation Using Tokens in Heterogeneous Small Cell Networks," *IEEE J. Sel. Areas Commun.*, vol.33, no.6, pp.1097-1111, June 2015. [\[Link\]](#)
87. N. Thomos, E. Kurdoglu, P. Frossard, and M. van der Schaar, "Adaptive Prioritized Random Linear Coding and Scheduling for Layered Data Delivery from Multiple Servers," *IEEE Trans. Multimedia*, vol. 17, no. 6, pp. 893-906, June 2015. [\[Link\]](#)
88. Y. Zhang and M. van der Schaar, "Structure-Aware Stochastic Storage Management In Smart Grids," *IEEE Journal of Selected Topics in Signal Processing, Special Issue on Signal Processing in Smart Electric Power Grid*, vol. 8, no. 6, pp. 1098-1110, 2014. [\[Link\]](#)
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36. D. Turaga, M. van der Schaar, J. Apostolopoulos, S. Wee, "Applications and Requirements for Multiple Description Scalable Coding", M9246, December 2002.
37. Y. Andreopoulos, A. Munteanu, P. Schelkens, M. van der Schaar, J. Cornelis, "Control of the Distortion Variation in Motion Compensated Temporal Filtering", M9253, December 2002.
38. C.-J. Tsai, M. van der Schaar, Y.-K. Lim, "MPEG Media Streaming Reference Platform", M9183, December 2002.
39. J. Ye, M. van der Schaar, "3-D Lifting Structure for Sub-pixel Accuracy Motion Compensated Temporal Filtering in Overcomplete Wavelet Domain", M9554, March 2003.
40. J. Ye, M. van der Schaar, "3-D Lifting Structure for Sub-pixel Accuracy Motion Compensated Temporal Filtering in Overcomplete Wavelet Domain", M9554, March 2003.
41. J. Ye, M. van der Schaar, "Transcaling for efficient end-to-end streaming over the Internet and wireless networks using adaptive overcomplete wavelet video coding", M9556, March 2003.
42. D. Turaga, M. van der Schaar, J. Apostolopoulos, S. Wee, "Considerations and Example Algorithms for Multiple Description Scalable Coding", M9599, March 2003.
43. Y. Andreopoulos, J. Barbarien, F. Verdicchio, A. Munteanu, M. van der Schaar, J. Cornelis, and P. Schelkens, "Response to Call for Evidence on Scalable Video Coding," ISO/IEC JTC1/SC29/WG11 (MPEG), Trondheim, Norway, MPEG Report M9911, July 20-25, 2003.
44. Y. Andreopoulos, A. Munteanu, M. van der Schaar, J. Cornelis, and P. Schelkens, "Comparison between $t+2D$ and $2D+t$ architectures with advanced motion compensated temporal filtering," ISO/IEC JTC1/SC29/WG11, m11045, MPEG 69th meeting, Redmond, US, July 2004.
45. Y. Andreopoulos, J. Barbarien, F. Verdicchio, A. Munteanu, M. van der Schaar, and P. Schelkens, "Response to Call for Proposals on Scalable Video Coding Technology," ISO/IEC JTC1/SC29/WG11 (MPEG), m10589, MPEG 68th meeting, Munich, Germany, March 2004.
46. Grégoire Pau, Béatrice Pesquet-Popescu, Mihaela van der Schaar, Jérôme Viéron, "Delay-Performance Trade-Offs in Motion-Compensated Scalable Subband Video Compression", doc m11084, July 2004, Redmond, USA

**TUTORIALS AT
MAJOR IEEE
CONFERENCES
AND
UNIVERSITIES**

1. "Scalable Video Coding – Principles and Standards", at IEEE International Conference on Image Processing (ICIP) 2001, October 2001.
2. "Scalable Video Coding – Wavelet & FGS", at Philips Center for Technical Training, May 2002.
3. "MPEG-4 Fine Granularity Scalability and Advanced Simple Profile" at MPEG-4 Industry Forum, June 2002.
4. "Video transmission over Wireless LANs – Challenges, Principles and Standards" for IEEE International Conference on Consumer Electronics (ICCE) 2003, June 2003.
5. "Motion Compensated Wavelet Coding", at IEEE International Conference on Image Processing (ICIP) 2003, September 2003.
6. "Multimedia Transmission over WLANs using Cross Layer Design - Challenges, Principles and Standards", at IEEE Globecom 2003, December 2003.
7. "Cross-layer Optimization for Wireless Multimedia Transmission Principles and Standards", 7th International Conference on Management of Multimedia Networks and Services (MMNS) 2004.
8. "Cross-Layer Design for Multimedia Transmission", at IEEE International Conference on Image Processing (ICIP) 2004.
9. "Cross Layered Design using Spectrum Agile Radios", at IEEE Globecom 2004.
10. "Cross Layer Optimized Wireless Multimedia", at IEEE ICASSP 2005.
11. "Design and Optimization of Adaptive Multimedia Systems - Challenges, Approaches and Opportunities", at IEEE ICME 2005.
12. "Fundamentals of Multimedia Transmission over Emerging Spectrum Agile Wireless Networks", at IEEE ICIP 2005 (http://www.icip05.org/tutorial_full.htm#TP3).
13. "System Design for Multimedia Applications – Challenges, Design methods and recent developments", at DAC 2007.
14. "Game Theoretic Approaches for Cognitive Radios", at ICIP 2007.
15. "Networking Games" at UPC, Barcelona, Spain (1-week).
16. "Games, Distributed Decision Making and Learning in Wireless Multimedia Networks" at IEEE Globecom, December 2008.
17. "Network Economics and Game Theory", September 2009, EPFL, Switzerland (1-week)
18. "Systematic Framework for Cross-Layer Optimization", IEEE Globecom 2009.
19. "Large-Scale and Distributed Stream Mining Systems", ACM Multimedia 2010.
20. "Network Economics and Game Theory", 2012, ENST, France
21. "Games and Design in Signal Processing", ICASSP 2013.
22. "Games and Design in Signal Processing", (2013) at University La Sapienza, Rome, Italy.

23. “Online Reinforcement Learning and Markov Decision Processes” (2013) at University La Sapienza, Rome, Italy and Tor Vergatta University, Rome, Italy.
24. “Quality of Service in Network Communications” (2013) at Dublin City University, Ireland.
25. “Online Learning in Multi-agent Environments - Applications to Communication and Networking”, Globecom 2013, Atlanta 2013
26. Tutorial on “Machine Learning and Data-driven Decision Making”, 2016 IEEE Signal Processing Society Summer School on Signal Processing and Machine Learning for Big Data, Pittsburgh, PA, USA, May 17 - 19, 2016.

KEYNOTE TALKS

1. 2015 International Conference on Computing, Networking and Communications (ICNC 2015)
2. Distinguished Seminar Speaker at Academia Sinica Taiwan 2014
3. Keynote speaker at IEEE Consumer Electronics (ICCE) Taiwan 2014
4. Keynote speaker at IEEE BigData 2014 Taipei Satellite Session 2014
5. Keynote speaker at the Quality of Experience for Multimedia Communications Workshop, Globecom 2013
6. Keynote speaker at the Annual Meeting of the Association Group National Telecommunications and Information Technologies of Italy, 2013
7. Plenary talk at 2013 International Conference on Computing, Networking and Communications (ICNC 2013)
8. Eliahu I and Joyce Jury Seminar at the ECE Department of University of Miami, 2012
9. Keynote speaker at 2012 European Signal Processing Conference (EUSIPCO-2012)
10. Keynote speaker at the IEEE International Symposium on Multimedia, Dana Point, California, USA, December 2011.
11. Keynote speaker at the IEEE International Conference on Semantic Computing, Stanford university, September 2011.
12. Keynote speaker at the 6th International Conference on Image and Graphics (ICIG), 2011, Hefei, Anhui, China, August 2011
13. Keynote speaker at Wireless Advanced Conference – June 2010, King’s College, London

DISTINGUISHED LECTURES AND SEMINARS

- MIT
- Harvard University;
- University of California Berkeley;
- University of California, Irvine;
- University of California, Riverside;
- Princeton University;
- University of Michigan;
- USC;
- Northwestern University;
- Wayne University;
- EPFL (Switzerland)
- University of Rome, Tor Vergatta (Italy)
- University of Rome, La Sapienza (Italy)
- Dublin City University
- ENST, Paris
- Etc. etc.

IEEE COMSOC DISTINGUISHED LECTURER SEMINARS

- Paris-ENST (Ecole Nationale Supérieure des Télécommunications): 4 lectures
- Supelec, Paris: two lectures
- Queen Mary University, London
- Vienna University of Technology
- Columbia University
- Boston University
- New Jersey Institute of Technology (NJIT)
- NYU-Polytechnic University New York
- Shanghai Jiaotong University: two lectures
- University of Science and Technology (USTC), Hefei, Anhui, China

INVITED TALKS **Invited speaker at numerous companies:** Microsoft Research, Intel Corporation, Thomson Research, Xilinx Research, Cisco, Sanyo, HP Research Labs, Skype, HRL Malibu etc.

Invited seminar speaker at numerous universities: including MIT, Harvard, EPFL (Switzerland), Univ. of Michigan, Princeton University, UC Berkeley, Stanford University, UC Santa Barbara, UC Irvine, University of Southern California, Columbia University, University of Rochester, Drexel University, Polytechnic University Brooklyn, University of Wisconsin-Madison, Eindhoven University of Technology (the Netherland), Vrije Universiteit Brussels (Belgium), Univ. La Sapienza (Italy), etc.

**CONFERENCES/
WORKSHOP
ORGANIZATION**

General Conference Chair/Conference Chair/Area Chair

- “Multimedia streaming” session, Packet Video Conference, April 2002.
- “Signal Processing for Media Integration” session, IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) 2003.
- Chair of “Multimedia Communications and Networking” track at IEEE Conference on Multimedia and Expo (ICME) 2003.
- Area Chair at IEEE Conference on Multimedia and Expo (ICME) 2004.
- General chair of Picture Coding Symposium (PCS) 2004, oldest conference on image/video compression.
- General co-chair BaseNets 2005, Boston, 2005.
- Technical General Chair, Packet Video, Switzerland, 2007.
- Chair of the Technical Program Committee, Mobimedia 2007
- Program Chair, International Workshop on Image Analysis for Multimedia Interactive Services (WIAMIS), London 2009
- Special Sessions Chair - IEEE International Conference on Acoustics Speech and Signal Processing (ICASSP) 2011
- Program Co-Chair International Symposium on Multimedia 2012
- Tutorial Co-Chair IEEE International Conference on Image Processing (ICIP) 2014
- Co-organizer - Machine Learning for Education Workshop at International Conference on Machine Learning (ICML) 2015 (http://dsp.rice.edu/ML4Ed_ICML2015)
- Co-organizer - Machine Learning for Education Workshop at International Conference on Machine Learning (ICML) 2016

Organization of Special Sessions

- “Internet video streaming” session, ISAS Conference, July 2001.
- “Motion-compensated wavelet video coding” session, Visual Communication and Image Processing (VCIP), July 2003.
- “Networked video” session, IEEE Conference on Multimedia and Expo (ICME), July 2003.
- “Multimedia networking and architectures” session, SPIE Applications of Digital Image Processing 2004 and 2005.
- “Cross-layer design for multimedia networking” session, IEEE International Workshop on Multimedia Signal Processing (MMSP) 2004.
- “Enterprise Multimedia Streaming” session, IEEE ICME Conference 2005.

Workshops

Organized the EE Workshop on Wireless Multimedia Systems at UCLA, May 2006.

Organized the EE Workshop on Power-Constrained Multimedia Systems – Theory, Algorithms, Platforms, Middleware at UCLA, February 2007.

Organized the Southern California Workshop on Distributed Multimedia Systems at UCLA (Nov. 2009)

Co-founder and co-organizer since 2009 the Network Economics and Game Theory Symposium – see <http://medianetlab.ee.ucla.edu/SoclaNEGT/index.html>

Steering Program Committee

- Packet Video Workshop (2006 – now).
- Picture Coding Symposium (2004 – now)

Technical Program Committee (not complete)

- IEEE Information Theory Symposium in the Benelux 1998, the Netherlands.
- World Multiconference on Systemics, Cybernetics and Informatics, ISAS-SCI, 2001-2004.

- IEEE Conference on Multimedia and Expo (ICME) 2003, 2004, 2005, 2006.
- IEEE Conference on Image Processing (ICIP) 2003-2009.
- IEEE Conference on Acoustic, Speech and Signal Processing (ICASSP) 2003-2007.
- SPIE Visual Communications and Image Processing (VCIP) 2003, 2004, 2005.
- SPIE Applications of Digital Image Processing XXVII 2004.
- IEEE Intl. Workshop on Multimedia Signal Processing, 2004, 2007, 2009.
- Packet Video Workshop, 2004, 2006, 2007, 2010.
- International Conference on Management of Multimedia Networks and Services, 2004.
- Workshop on Broadband Advanced Sensor Networks (BASENET), 2004.
- SPIE Image and Video Communications and Processing, 2005.
- IEEE International Conference on Communication (ICC)- Multimedia Communications and Home Networking Symposium, 2005, 2006.
- IEEE Workshop on Embedded Systems for Real-Time Multimedia Systems – 2007, 2008, 2009
- Cognitive Image Processing (CIP) Workshop – 2008, 2009
- SPIE Applications of Digital Image Processing XXXI (OP317)
- The Third International Conference on Systems and Networks Communications ICSNC 2008
- Fifth International Conference on Visual Information Engineering VIE'08
- First International Workshop on Mining Multimedia Streams in large-scale Distributed Environments (MMSDE) co-located with IEEE International Conference on Data Engineering, 2008
- IEEE International Conference on Management of Multimedia and Mobile Networks and Services (MMNS) 2008.
- IEEE CCNC (<http://www.ieee-ccnc.org/>)
- INFOCOM 2009 MoViD Workshop.
- ACM Multimedia 2010.
- Gamenets 2011 and 2012.
- Gamecomm 2011
- IEEE Dyspan 2011
- IEEE ICC Workshop 2012
- PCS 2013
- IEEE Infocom Workshop on Smart Data Pricing 2013 - 2015
- Etc.

REVIEWER

- Reviewer of numerous IEEE Transactions and EURASIP journals
- Reviewer in NSF Panels - CAREER Panels, Computer Systems Research, Theoretical Foundations
- Reviewed proposals for the UC Micro program (2004-2009)

ADVISED

PH.D./MSC./POST -DOC STUDENTS

PhD students - Engineering

- Dr. Jie Xu – PhD 2015 (UCLA) – Assistant Professor at University of Miami
- Dr. Yuanzhang Xiao – PhD 2014 (UCLA) – Post-doc at Northwestern University
- Dr. Yu Zhang – PhD 2013 (UCLA) – Research scientist at Microsoft Bing
- Dr. Shaolei Ren – PhD 2012 (UCLA) – Assistant Professor at UC Riverside
- Dr. Nicholas Mastronarde – PhD 2011 (UCLA) – Assistant Professor at Univ. of Buffalo
- Dr. Yi Su – PhD 2010 (UCLA) – Research scientist at Qualcomm
- Dr. Fangwen Fu – PhD 2010 (UCLA) – Now research scientist at Intel
- Dr. Peter Shiang - PhD 2009 (UCLA) – Now research scientist at Cisco
- Dr. Brian Foo – PhD 2008 (UCLA) - Now research scientist at Lockheed Martin's advanced technology center
- Dr. Hyunggon Park - PhD 2008 (UCLA) – Now Assistant Professor in the Department of Electronics Engineering at the Ewha Womans University, Seoul, South Korea

PhD students - Economics

- Dr. Simpson Zhang – co-adviser – PhD 2016 (UCLA) - Office of Financial Research of the U.S. Treasury Department
- Dr. Yangbo Song – co-adviser - PhD 2015 (UCLA) – Chinese University of Hong Kong
- Dr. Jaek Park – co-adviser - PhD 2011 (UCLA) – Now Assistant Professor in Economics Department at Yonsei, Korea

Post-doctoral students

- Dr. Cem Tekin – Post-doc (Feb. 2013 – Dec. 2014) – Now Assistant Professor Bilkent University, Turkey
- Dr. Luca Canzian - Post-doc and visiting student (Jan. 2013 – Apr 2014) – Now Post-doc, Computer Science Department, University of Birmingham, United Kingdom
- Dr. Yiannis Andreopoulos (Vrije Universiteit Brussels, Belgium, Graduated May 2005) – PhD Thesis, co-adviser – visiting student at UC Davis/UCLA, post-doc at UCLA; Now Reader at University College London (UCL), London, United Kingdom.

MSc (Thesis) and Engineer Degree students

- Zhiping Hu – M.Sc. Thesis 2005 (UC Davis) – now with Universal Electronics Inc.
- Nick Mastronarde – M.Sc. Thesis 2006 (UC Davis) – see above
- Xiaolin Tong – M.Sc. Thesis 2006 (UCLA) – now with Qualcomm
- Shih-Chung Su - M.Sc. Thesis 2007 (UCLA) – now with BroadLogic Inc.
- Wenchi Tu – M.Sc. Thesis 2008 (UCLA) – now with Mavrix Technology
- Raphael Ducasse – M.Sc. Thesis 2009 (UCLA) – now with Boston Consulting
- Shuo Chen –M.Sc. Thesis 2011 (UCLA) – now with EBay
- Nikolaos Kontorinis 2007 – Engineer Degree (UCLA)

EXTERNAL COMMITTEE MEMBER FOR THE FOLLOWING PH.D. STUDENTS

- Dr. Trista Chen (Carnegie Mellon University, USA, Graduated June 2003)
- Dr. Andrew Secker (University of New South Wales, Australia, Graduated July 2003)
- Dr. Christophe Tillier (ENST, Paris, France, Graduated July 2005)
- Dr. Dan Jurca (EPFL, Switzerland, Graduated September 2007)
- Dr. Ulrich Berthold (Universität Karlsruhe (TH), Graduated January 2009)
- Dr. Byung-Gook Kim (Yonsei Univ., Korea, Graduated July 2013)
- Dr. Karim Kanoun (EPFL, Switzerland, Graduated August 2015)

PROMOTION OF WOMEN IN ENGINEERING

Participated as a panelist in the IEEE ICASSP 2005 panel on “Women in Signal Processing” (http://www.icassp2005.com/SS_P1.asp)

Invited speaker “On-Ramps into Academia” workshop - October 19 and 20, 2009 at University of Washington. (funded by NSF ADVANCE) - http://www.engr.washington.edu/onramp/Upcoming_Workshop.htm

Mentor at Women in Machine Learning at International Conference on Machine Learning (ICML) 2015, the premier conference in machine learning