

CURRICULUM VITAE

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EDUCATION

- 1989-1994, Ph.D. in *Electrical and Electronics Engineering*, Bilkent University, Ankara, Turkey
- 1987-1989, M.S. in *Electrical and Electronics Engineering*, Bilkent University, Ankara, Turkey
- 1983-1987, B.S. in *Electrical and Electronics Engineering*, Middle East Technical University, Ankara, Turkey

WORK EXPERIENCE

- Fulbright Visiting Research Scholar, *School of Computing and Engineering, Department of Computer Science and Electrical Engineering, University of Missouri – Kansas City*, Jan. 2010 – July 2010 (on leave from Bilkent University).
- Associate Professor of the Department of Electrical and Electronics Engineering at Bilkent University from December 2005 to present.
- Assistant Professor of the Department of Electrical and Electronics Engineering at Bilkent University from July 2000 to 2005.
- Senior Member of Technical Staff at *Technology Planning and Integration, Long Distance Division, Sprint, Overland Park, KS*, from November 1998 to July 2000.
- Member of Technical Staff at *Technology Planning and Integration, Long Distance Division, Sprint, Overland Park, KS*, from December 1996 to November 1998.
- Visiting Assistant Professor at *Computer Science Telecommunications, University of Missouri-Kansas City* from August 1996 to December 1996.
- Visiting Scholar at *Computer Science Telecommunications, University of Missouri-Kansas City* from September 1994 to August 1996.

- Instructor and teaching assistant at *Bilkent University, Ankara, Turkey* from September 1993 to August 1994.
- Research and teaching assistant at *Bilkent University, Ankara, Turkey* from September 1987 to September 1993.

PROFESSIONAL ACTIVITIES

- Area editor for Elsevier journal *Computer Networks* (2005-2008)
- Technical program co-chair, *IP Operations and Management Conference (IPOM)* 2008,
- TPC Member, *IEEE Workshop in IP Operations and Management, IPOM* 2003, *IPOM* 2004, and *IPOM* 2005.
- *QoS Control and Traffic Modeling Track Co-chair, ICCCN* 2008.
- TPC Member, *IEEE International Conference on Computer Communications and Networks, ICCCN* 2003, *ICCCN* 2004, *ICCCN* 2007.
- *Publicity Chair, 2003 IEEE Symposium on Computers and Communications (ISCC'2003)*.
- TPC Member, *IEEE Symposium on Computers and Communications, ISCC'2003, ISCC'2004, ISCC'2005, and ISCC* 2006.
- TPC Member, *Globecom* 2007, 2008, 2009, 2010 *Optical Networks and Systems*
- TPC Member, *International Workshop on Internet Performance, Simulation, Monitoring, and Measurements IPS-MoMe* 2005 and *IPS-MoMe* 2006.
- Reviewer for *IEEE/ACM Transactions on Networking, IEEE Transactions on Parallel and Distributed Computing, IEEE Transactions on Vehicular Technology, IEEE Transactions on Computers, IEEE Network Magazine, IEEE Communications Letters, IEEE/OSA Journal of Lightwave Technology, Computer Networks, Computer Communications, Wireless Networks, Mathematical Methods of Operations Research, Queueing Systems, Performance Evaluation, Telecommunication Systems, Annals of Telecommunications, IEEE/OSA Journal of Optical Communications and Networking, Optical Switching and Networking, European Journal of Operations of Research*.
- Secretary and Treasurer, *IEEE Turkey Section* (2004–2005).
- *Bilkent University IEEE Student Branch Councilor* (2006-)
- Member, *IEEE*.
- Member, *IEICE*.

AWARDS AND RESEARCH GRANTS/PROJECTS

- Tübitak Project No:111E106 Principal Investigator, Analytical Modeling and Engineering of Link Layer Networks with Losses and Latency - Gecikmeli Ve Kayıplı Yeni Nesil Link Katmanı Ağların Analitik Modellemesi ve Mühendisliği, 2011-2013
- TABAYU (TELEKOMÜNİKASYON AĞLARINDA BAŞARIM ANALİZİ YÖNTEMLERİ VE UYGULAMALARI – Performance Analysis Techniques and Applications to Telecommunication Networks), *Principal Investigator*, Tübitak EEEAG 106E046, July 2006-June. 2009.
- “BONE - Building the Future Optical Network in Europe”, Researcher, Sponsor: 7th European Community Framework Programme for Research and Technological Development (FP6).
- “E-Photon/One (Optical Networks): Towards Bandwidth Manageability and Cost Efficiency,” Researcher, Sponsor: 6th European Community Framework Programme for Research and Technological Development (FP6), February 2004–February 2006, Budget: EUR 2,900,000 (whole consortium), EUR 54,000 (Bilkent).
- “NEWCOM: Network Of Excellence in Wireless Communications,” Researcher, Sponsor: 6th European Community Framework Programme for Research and Technological Development (FP6), March 2004–September 2006, Budget: EUR 8,000,000 (whole consortium), EUR 150,000 (Bilkent)
- “Digital PMR Systems”, Researcher, Sponsor: Aselsan, October 2002 - December 2002, Budget: 46,000 USD.
- COST 279: Analysis and Design of Advanced Multiservice Networks supporting Mobility, Multimedia, and Internetworking,” sponsor: Tubitak EEEAG-101E048 and COST–European Co-operation in the field of Scientific and Technical Research, *Principal Investigator*, August 2002–June 2005, USD 36,000.
- System-Theoretic Approach to Teletraffic Analysis and Engineering,” sponsor: Tubitak - EEEAG-101E025 and National Science Foundation (NSF), US-Turkey Cooperative Research, *Co-Principal Investigator*, August 2001–August 2005, USD 20,700 (NSF) + 11,000,000,000 TL (Tubitak).
- Sprint values excellence, June 1998.
- Sprint Quest for excellence, November 1997.
- “Teletraffic modeling and analysis of communication networks with parallelizable algorithms and their implementation” awarded the National Science Foundation Postdoctoral Research Associate Fellowship in Computational Science and Engineering Program (ASC 9625748), *Principal investigator*: K. Sohraby, 1996-1998.

PUBLICATIONS

EDITED BOOKS

- Jose Brazio, Phuoc Tran-Gia, Nail Akar, Andrzej Beben, Wojciech Burakowski, Markus Fiedler, Ezhan Karasan, Michael Menth, Philippe Olivier, Kurt Tutschku, Sabine Wittevrongel, COST-279 Final Report - Analysis and Design of Advanced Multiservice Networks Supporting Mobility, Multimedia, and Internetworking, Springer, 2005.
- Nail Akar, Michal Pioro, Charalabos Skianis (Eds.), LNCS 5275, 8th IEEE International Workshop, IPOM 2008, Samos Island, Greece, September 2008 Proceedings.

BOOK CHAPTERS

- E. Ayanoglu and N. Akar, BISDN (Broadband Integrated Services Digital Network), Wiley Encyclopedia of Telecommunications, 2003.

JOURNAL PUBLICATIONS

1. A. Yazıcı and N. Akar, "Running Multiple Instances of the Distributed Coordination Function for Air-time Fairness in Multi-Rate WLANs", IEEE Trans. Communications, accepted for publication.
2. N. Akar and Y. Gunalay, "Dimensioning Shared-per-Node Recirculating Fiber Delay Line Buffers in an Optical Packet Switch", Performance Evaluation, Volume 70, Issue 12, pp. 1059-1071, December 2013.
3. A. Yazıcı and N. Akar, "The Workload-dependent MAP/PH/1 Queue with Infinite/Finite Workload Capacity", Performance Evaluation, Volume 70, Issue 12, pp. 1047-1058, December 2013 .
4. N. Akar, "Delay Analysis of Timer-Based Frame Coalescing in Energy Efficient Ethernet", IEEE Communications Letters, vol. 17, no. 7, pp. 1459-1462, July 2013.
5. N. Akar, C. Raffaelli, M. Savi, "State Aggregation-based Model of Asynchronous Multi-Fiber Optical Switching with Shared Wavelength Converters", Optical Switching and Networking, vol. 10, no. 3, pp. 173-185, 2013.
6. N. Akar, "Moments of Conditional Sojourn Times in Finite Capacity M/M/1/N-PS Processor Sharing Queues," IEEE Communications Letters, vol. 16, No. 4, pp. 533-535, 2012.
7. N. Akar and K. Sohraby, Retrial Queuing Models of Multi-wavelength FDL Feedback Optical Buffers, IEEE Trans. Communications, vol. 59, no. 10, pp. 2832-2840, Oct. 2011.
8. N. Akar, V. Eramo, and C. Raffaelli, "Comparative Analysis of Power Consumption in Asynchronous Wavelength-Modular Optical Switching", Optical Switching and Networking, vol. 8, no. 3, pp. 139-148, July 2011.

9. O. Alparslan, N. Akar and E. Karasan, "TCP Flow Aware Adaptive Path Switching in Diffserv Enabled MPLS Networks," *European Transactions on Telecommunications*, vol. 22, no. 5, pp. 185-199, August 2011.
10. N. Akar and M. A. Toksoz, "MPLS Automatic Bandwidth Allocation via Adaptive Hysteresis", *Computer Networks*, vol. 55, no. 5, pp. 1181-1196, April 2011.
11. M. A. Toksoz and N. Akar, "Dynamic Threshold-based Assembly Algorithms for Optical Burst Switching Networks Subject to Burst Rate Constraints," *Photonic Network Communications*, vol. 20, no. 2, pp. 120-130, Oct. 2010.
12. N. Akar, C. Raffaelli, M. Savi, and E. Karasan, "Shared-Per-Wavelength Asynchronous Optical Packet Switching: A Comparative Analysis", *Computer Networks*, vol. 54, no. 13, pp. 2166-2181, Sep. 2010.
13. N. Akar, E. Karasan, K. G. Vlachos, M. Varvarigos, D. Careglio, M. Klinkowski, J. Solé-Pareta, "A Survey of Quality of Service Differentiation Mechanisms for Optical Burst Switching Networks", *Optical Switching and Networking*, vol. 7, no. 1, pp. 1-10, January 2010.
14. E. Kankaya, N. Akar, "Exact Analysis of Single-Wavelength Optical Buffers with Feedback Markov Fluid Queues", *IEEE/OSA Journal of Optical Communications and Networking*, vol.1, no.6, pp.530-542, November 2009.
15. N. Akar, K. Sohraby, "System-theoretical algorithmic solution to waiting times in semi-Markov queues", *Performance Evaluation*, vol. 66, no. 11, pp. 587-606, November, 2009.
16. N. Akar, E. Karasan, and C. Raffaelli, "Fixed Point Analysis of Limited Range Share Per Node Wavelength Conversion in Asynchronous Optical Packet Switching Systems", *Photonic Network Communications*, Volume 18, Number 2, pp. 255-263, October, 2009.
17. O. Ozturk, E. Karasan, and N. Akar, "Performance Evaluation of Slotted Optical Burst Switching Systems with Quality of Service Differentiation", *IEEE/OSA Journal of Lightwave Technology*, vol. 27, no. 14, pp. 2621-2633, July, 2009.
18. H. E. Kankaya and N. Akar, Exact Analysis of Offset-based Service Differentiation in Single-channel Multi-class OBS, *IEEE Communications Letters*, vol. 13, issue 2, February 2009, pages 148-150
19. H. E. Kankaya and N. Akar, Solving Multi-Regime Feedback Fluid Queues, *Stochastic Models*, vol. 24, issue. 3, 2008.
20. N. Akar and Y. Günalay, "Stochastic analysis of finite population bufferless multiplexing in optical packet/burst switching systems," *IEICE Trans Commun*, vol. 90, pp. 342-345, 2007.
21. J. Aracil, N. Akar, S. Bjornstad, M. Casoni, K. Christodoulopoulos, D. Careglio, J. Fdez-Palacios, C. Gauger, O. Gonzalez de Dios, G. Hu, E. Karasan, M. Klinkowski, D. Morato, R. Nejabati, H. Overby, C. Raffaelli, D. Simeonidou, N. Stol, G. Tosi-Beleffi and K. Vlachos, "Research in Optical Burst Switching within the e-Photon/ONE Network of Excellence ", *Optical Switching and Networking*, vol. 4, no. 1, pp.1-19, Feb. 2007.

22. K. Dogan, Y. Gunalay, and N. Akar, "Comparative study of limited range wavelength conversion policies for asynchronous optical packet switching," *Journal of Optical Networking*, vol. 6, pp. 134-145, 2007.
23. N. Akar, E. Karaşan, and K. Doğan, "Wavelength converter sharing in asynchronous optical packet/burst switching: An exact blocking analysis for Markovian arrivals," *IEEE J Select. Areas Commun*, vol. 14, no.12, Part Supplement, 69-80, Dec. 2006.
24. H. Boyraz and N. Akar, "Rate-controlled optical burst switching for both congestion avoidance and service differentiation", *Elsevier Optical Switching and Networking*, vol. 2, no. 4, pp. 217-229, Dec. 2005.
25. N. Akar, "Solving the ME/ME/1 queue with state-space methods and the matrix sign function", *Performance Evaluation*, Vol. 63, No. 2, pp. 131-145, Feb. 2006.
26. T. Dayar and N. Akar, "Computing moments of first passage times to a subset of states in Markov chains", *SIAM Journal on Matrix Analysis and Applications*, Vol. 27, No. 2, 2005.
27. E. Gurses, G. Bozdagi Akar, and N. Akar, "A simple and effective mechanism for stored video streaming with TCP transport and server-side adaptive frame discard", *Computer Networks*, Vol. 48
28. T. P.R. Nyirenda-Jere, V. Frost, and N. Akar, "Capacity requirements of traffic handling schemes in multi-service networks", *Computer Communications*, Vol. 28, pp. 2070-2081, 2005.
29. O. Alparslan, N. Akar and E. Karaşan, "AIMD-based online MPLS traffic engineering for TCP flows via distributed multi-path routing", *Annales Des Telecommunications (Annals of Telecommunications, Special Issue on Traffic Engineering and Routing)*, Vol. 59, No. 11-12, Nov-Dec 2004.
30. N. Akar, I. Hokelek, and E. Karaşan, "Available bit rate traffic engineering in MPLS networks with flow-based multipath routing", *IEICE Transactions Communications*, vol. E87-B, no.10, pp. 2913-2921, October 2004.
31. N. Akar and K. Sohraby, "Infinite/finite buffer Markov fluid queues: A unified analysis", *Journal of Applied Probability*, June 2004.
32. E. Karasan, O. Ekin-Karasan, N. Akar, and M. Pinar, "Mesh topology design in overlay virtual private networks", *IEE Electronics Letters*, August 2002.
33. N. Akar, N. C. Oguz, and K. Sohraby, "A novel computational method for solving finite QBD processes", *Stochastic Models*, Vol. 16, No. 2, pp. 273-312, 2000.
34. N. Akar, N. C. Oguz, and K. Sohraby, "Matrix-geometric solutions of M/G/1-type Markov chains: A unifying generalized state-space approach", *IEEE Journal on Selected Areas in Communications*, vol. 16, no. 5, pp. 626-639, 1998.
35. N. Akar, N. C. Oguz, and K. Sohraby, "TELPACK: An advanced Teletraffic Analysis Package", *IEEE Communications Magazine*, vol. 36, no. 8, pp. 84-87, 1998.

36. N. Akar and K. Sohraby, "An invariant subspace approach in M/G/1 and G/M/1 type Markov chains", *Communications, Statistics, and Stochastic Models*, 1997.
37. N. Akar and E. Arikan, "A numerically efficient method for the MAP/D/1/K queue via rational approximations, *Queuing Systems and Applications*, 1996.
38. N. Akar and E. Arikan, "Markov modulated periodic arrival process offered to an ATM multiplexer", *Performance Evaluation*, 1995.
39. A. B. Ozguler and N. Akar, "A common solution to a pair of linear matrix equations over a principal ideal domain", *Linear Algebra and Its Applications*, vol. 144, pp. 85-89, 1991.

REFEREED CONFERENCE PROCEEDINGS

1. N. Akar, C. Raffaelli, and M. Savi, "Analytical Model of Asynchronous Shared-per-Wavelength Multi-fiber Optical Switch", IEEE Conference on High Performance Switching and Routing (HPSR) 2011.
2. M. Cenk. Ertürk and Nail Akar, "rtPS Uplink Scheduling Algorithms for IEEE 802.16 Networks," in the Proceedings of 8th International Symposium on Computer Networks, ISCN'08, Istanbul, 2008.
3. N. Akar, "Model-free Adaptive Hysteresis for Dynamic Bandwidth Reservation, *in the Proceedings of 15th Annual Meeting of the IEEE / ACM International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS)* , Istanbul, Turkey, October 24-26, 2007.
4. N. Akar, E. Karasan, G. Mureto, Carla Raffaelli, "Performance Analysis of an Optical Packet Switch Employing Full/Limited Range Share Per Node Wavelength Conversion," in the Proceedings of IEEE Globecom 2007, Washington DC, USA, November 2007.
5. N. Akar, M. Barbera, L. Budzisz, R. Ferrùs, E. Kankaya, G. Schembra, A Performance Evaluation Framework of A Rate-Controlled MPEG Video Transmission over UMTS Networks, MediaWin 2007, Aveiro, Portugal, 2007.
6. C. Raffaelli, M. Savi, N. Akar, E. Karasan, 'Packet Loss Analysis of Synchronous Buffer-less Optical Switch with Shared Limited Range Wavelength Converters, accepted for High Performance Switching and Routing Conference, New York, 2007.
7. E. Gurses, G. B. Akar, and N. Akar, "Optimal packet scheduling and rate control for video streaming", SPIE Visual Communications and Image Processing 2007, San Jose, USA, 2007.

8. N. Akar and K. Sohraby, "Solving the Single Server Semi-Markov Queue with Matrix Exponential Kernel Matrices for Interarrivals and Services", VALUETOOLS 2006, Pisa, Italy, 2006.
9. N. Akar, "A Matrix Analytical Method for the Discrete Time Lindley Equation using the Generalized Schur Decomposition", SMCTOOLS, Pisa, Italy, 2006.
10. K. Dogan and N. Akar, "A Performance Study of Limited Range Partial Wavelength Conversion for Asynchronous Optical Packet/Burst Switching", ICC 2006, Istanbul, Turkey.
11. N. Akar and H. Boyraz, "Differentiated ABR: A New Architecture for Flow Control and Service Differentiation in Optical Burst Switched Networks", Proceedings of ONDM (Optical Network Design and Modeling) Conference, Milano, Italy, February 2005.
12. N. Akar and E. Karasan, "Exact Calculation of Blocking Probabilities for Bufferless Optical Burst Switched Links with Partial Wavelength Conversion", 1st International Conference on Broadband Networks - BroadNets 2004, San Jose, USA, 2004, also available as Lecture Notes in Computer Science, vol. 3266, pp. 124-133, 2004.
13. N. Akar, I. Hokelek, M. Atik, and E. Karasan, "A Reordering-free Multipath Traffic Engineering Architecture for Diffserv-MPLS Networks", IEEE Workshop on IP Operations and Management, Kansas City, Missouri, USA, October 1-3, 2003.
14. N. Akar and K. Sohraby, "Algorithmic Solution of Finite Markov Fluid Queues", International Teletraffic Congress, Berlin, Germany, Sep. 2003
15. N. Akar and C. Sahin, "Dynamic Capacity Provisioning in Virtual Path-Based Networks Using Reinforcement Learning", International Teletraffic Congress, Berlin, Germany, Sep. 2003.
16. N. Akar and C. Sahin, "Reinforcement Learning as a Means of Aggregate QoS Provisioning, *ART-QoS 2003, Lecture Notes in Computer Science*, Springer-Verlag Heidelberg, Volume 2698, pp. 100 - 114, 2003.
17. N. Akar and C. Sahin, "Dynamic Capacity Management for Voice over Packet Networks", International Symposium on Computers and Communications, Antalya, Turkey, July 2003.
18. E. Sengul, B. Can, N. Akar, Y. Z. Ider and H. Koymen, "Capacity Analysis of a PMR System with DAB Downlink", International Symposium on Computers and Communications, Antalya, Turkey, July 2003.
19. E. Gurses, N. Akar, and G. B. Akar, "Selective Frame Discarding for Video Streaming in TCP/IP Networks", Packet Video Workshop, 2003.

20. E. Gurses, N. Akar, and G. B. Akar, "A Novel Architecture for Layered Video Streaming in TCP/IP Networks", COST276 Information and Knowledge Management for Integrated Media Communication Workshop, Bordeaux, March 31-April 1, 2003.
21. N. Akar and C. Sahin, "Reinforcement Learning as a Means of Aggregate QoS Provisioning", Workshop on Architectures for Quality of Service in the Internet (ART-QoS), 2003.
22. E. Gurses, G. B. Akar, and N. Akar, Impact of Scalability in Video Transmission in Promotion-Capable Differentiated Services Networks", International Conference on Image Communications 2002.
23. T. P. R. Nyirenda-Jere, V. S. Frost, and N. Akar, Traffic Handling and Network Capacity in Multi-Service Networks, IEEE GLOBECOM 2001.
24. T. P.R. Nyirenda-Jere, V.S. Frost, and N. Akar, Impact of Traffic Handling on Internet Capacity, SPIE Information Technologies and Communications Conference, 2001.
25. L. A. DaSilva, D. W. Petr, and N. Akar, "Static Pricing and Quality of Service in Multiple Service Networks", in the proceedings of the 5th International Conference on Computer Science and Informatics, Atlantic City, NJ, vol. 1, pp. 355-358, February 27-March 3, 2000.
26. R. Rabbat, K. Y. Siu, and N. Akar, "Supporting Differentiated Services Using ATM ABR Service", in IEEE ICCCN'99 Proceedings.
27. J. Sydir, N. Taft, and N. Akar, "Supporting TCP (In)efficiently over ATM", in MASCOTS'99 Proceedings.
28. Y. Wu, K. Y. Siu, N. Akar, and J. Yiu, "New packet discard algorithms for supporting GFR-like service", in Proceedings of IEEE GLOBECOM'99.
29. L. A. DaSilva, D. W. Petr, and N. Akar, "Effects of pricing in multi-service networks with resource allocation", in Proceedings of SPIE 1998.
30. N. Akar and K. Sohraby, "Matrix-geometric algorithmic solutions for M/G/1 type Markov chains", INFORMS'97, San Diego, 1997.
31. L. A. DaSilva, D. W. Petr, and N. Akar, "Equilibrium pricing in multi-service priority-based networks", in Proceedings of IEEE GLOBECOM'97.
32. N. Akar, N. C. Oguz, and K. Sohraby, "TELPACK: An Advanced TELetraffic Analysis Package", in Proceedings of IEEE GLOBECOM'97.
33. N. Akar and K. Sohraby, "Matrix-geometric solutions in M/G/1 type Markov chains with multiple boundaries: A generalized state-space approach", in Proceedings of International Teletraffic Congress, 1997.

34. N. Akar, N. C. Oguz, and K. Sohraby, "Finite and infinite QBD chains: A simple and unifying algorithmic approach", in Proceedings of IEEE INFOCOM'97.
35. N. Akar and K. Sohraby, "System theoretic approach to teletraffic problems: A unifying framework", in Proceedings of IEEE GLOBECOM'96.
36. N. Akar and K. Sohraby, "A new paradigm in teletraffic analysis of communication networks", in Proceedings of IEEE INFOCOM'96.
37. N. Akar and E. Arikan, "Markov Modulated Periodic Arrival Process Offered to an ATM Multiplexer", in Proceedings of IEEE GLOBECOM'1993.
38. N. Akar and E. Arikan, "Pade approximations in the analysis of the MMPP/D/1 system", in Proceedings of ITC Specialist Seminar on Teletraffic Analysis Methods for Current and Future Telecom. Networks, pp. 137-143, Nov. 1993, Bangalore, India, 1993.
39. N. Akar and A. B. Ozguler, "Exact and almost noninteracting control problems by measurement feedback", International Conference on New Trends in Comm., Contr., and Signal Proc. pp. 779-785, Bilkent University 1990, Ankara, Turkey.
40. B. Ozguler and N. Akar, "A common solution to a pair of linear matrix equations over a principal ideal domain", IFAC Workshop on System Structure and Control: State-space and Polynomial Methods, p. 37-40, 1989, Prague, Czechoslovakia.

INVITED TALKS

- "Feedback Markov fluid queues with applications to modelling optical burst/packet switching networks," 90 minutes tutorial given at PERFORMACE'2010, Nov. 16, 2010, Namur-Belgium.
- "Performance Modeling of Shared Wavelength Conversion Architectures for Optical Packet/Burst Switching," 60 minutes seminar, 10 May 2010, North Carolina State University, Computer Science Department, Raleigh, NC.
- "MPLS Automatic Bandwidth Allocation by Adaptive Hysteresis", 60 minutes seminar, May 27, 2010, University of Kansas, Lawrence, KS.
- "Multi-Regime Markov Fluid Queues: Formulation, Numerical Solutions, and Applications", 60 minutes seminar, April 2010, University of Missouri – Kansas City, MO.
- IP Virtual Private Networks, BİLİŞİM 2001, Istanbul, September 2001 (in Turkish)
- Role of MPLS in Optical Networks, BİLİŞİM 2001, Istanbul, September 2001 (in Turkish)
- L. A. DaSilva, D. W. Petr and N. Akar, Static Pricing and Traffic Management in Networks with Allocation of Resources, *Second Annual Sprint Applied Research Partners Advanced Networking (SPARTAN) Symposium*, May 19-20 1998, Lawrence, KS.

- A. Agrawal, N. Akar and K. Sohraby, "TELPACK: A robust and efficient teletraffic package for computer and communication networks", presented at Annual Workshop on Computer Communications, Washington DC, 1996.
- N. Akar and K. Sohraby, "System theoretic approach to teletraffic problems: A unifying framework", presented at Annual Workshop on Computer Communications, Seattle, 1995.

SUPERVISED THESIS WORK

1. Egemen Kavak, Performance analysis of generic discrete-time queues and applications to telecommunications networks, MS thesis, Bilkent University, 2001.
2. İbrahim Hökelek, Multipath based traffic engineering in MPLS networks, MS thesis, Bilkent University, 2002.
3. Ongun Yücesan, Combined use of congestion control and frame discarding for Internet video streaming, MS thesis, Bilkent University, 2003.
4. Cem Şahin, Dynamic capacity adjustment for virtual-path based networks using neuro-dynamic programming, MS thesis, Bilkent University, 2003.
5. Nuri Çelik, Using reinforcement learning for dynamic link sharing problems under signaling constraints', MS thesis, Bilkent University, 2003.
6. Hakan Boyraz, Flow control and service differentiation in optical burst switching networks, MS thesis, Bilkent University, 2005.
7. Kaan Doğan, Performance study of asynchronous/synchronous optical burst/packet switching with partial wavelength conversion, MS thesis, Bilkent University, 2006.
8. Sıla Kurugöl, A dynamic DRR scheduling algorithm for flow level QoS assurances for elastic traffic, MS thesis, Bilkent University, 2006.
9. Hüseyin Emre Kankaya, Feedback fluid queues with multiple thresholds, MS thesis, Bilkent University, 2006.
10. Eren Gürses, Optimal streaming of rate adaptable video", PhD thesis, Middle East Technical University, 2006 (co-supervised with G. B. Akar).
11. Cenk Ertürk, Uplink Scheduling Algorithms for the rtPS Traffic Class for IEEE 802.16 Networks, MS thesis, Bilkent University, 2008.

- 12.** Emre Kankaya, Performance Evaluation of Telecommunication Networks Based on Multi-Regime Fluid Queues , PhD thesis, 2009.
- 13.** Altan Toksöz, Dynamic Threshold-Based Algorithms for Communication Networks, MS Thesis, 2009.
- 14.** Fırat Karataş, A Distributed Air-Time Fair Mac for Multi-Rate IEEE 802.11 Networks Using Multiple Distributed Coordination Functions, MS thesis, 2010.
- 15.** Volkan Dinç, Analytical Modeling of Multi-Channel Optical Burst Switching with Multiple Classes, MS Thesis, 2011.