

## БИОГРАФИЈА

Др Александар Коларов рођен је 21.10.1960. године у Ваљеву. Дипломирао је 1984. године на одсеку Електроника, смер Аутоматско Управљање, Електротехничког Факултета у Београду. Магистрирао је 1987. године на одсеку за Аутоматско Управљање Електротехничког Факултета у Београду (тема: *Пројектовање филтара за праћење покретних циљева*). Докторирао је 1993. године на Rutgers University, Electrical and Computer Engineering Department, New Jersey, USA, где је стекао звање *Doctor of Philosophy*. Тема докторске тезе је: *Dynamic Routing in Multi-Service Networks*.

После завршених редовних студија у Београду, запослио се у Институту “Михајло Пупин” у Београду, где је радио као инжењер на пројектима за симулацију и дизајн система за аутоматско управљање. Један од таквих пројеката је послужио као основа његове магистарске тезе. Од 1989. године са сталним је пребивалиштем у САД. Као студент докторских студија провео је 4 године на Rutgers Univerzitetu. У току студија је поред истраживачког рада био укључен и у наставу на редовним студијама прво као асистент а затим и као професор.

После тога је био запослен у Истраживачком Институту компаније NEC прво као истраживач (research staff member) а затим као виши истраживач (senior research staff member). Током рада у NEC-у је учествовао на 20-так пројеката чија је проблематика базирана на дизајну и имплементацији протокола на неколико различитих нивоа (од другог до петог) TCP или OSI модела рачунарских мрежа. Најзначајнији допринос је био на пројекту за дизајн и имплементацију контроле у NEC ATM M20 switch-у. За иновацију на овом пројекту кандидату је додељен патент, а рад је објављен у престижном IEEE/ACM Transaction on Networking.

Од 2004. године каријеру је наставио у компанији Cisco на позицији техничког лидера (*technical leader*). Највећи део пројеката на којима је радио је био везан за имплементацију *Voice over IP* технологије на Cisco-вим производима. Последњих пола године рада у Cisco-у провео је радећи на софтверској платформи тада најкомплекснијег router-а на свету (CRS-1).

Од 2007. године каријеру наставља у Applied Research јединици компаније Telcordia на позицији старијег научног сарадника (*senior scientist*). Након продаје Telcordia-је Ericsson-у 2012. године Applied Research је постао независна јединица са новим именом Applied Communication Sciences. Од 2007. је учествовао на око 20 пројеката који се могу поделити у следећих 5 области:

1. Management and control of wireless and fixed networks,
2. Network modeling and simulation,
3. Performance testing,

4. Cybersecurity,
5. SmartGrid networks.

Током досадашњег рада у Applied Research-у је неколико пута добио похвалу за допринос на пројекту од стране спонзора.

Поред рада у у компанији, од 2008. године је *adjunct professor* (професор спољни сарадник) на Electrical and Computer Engineering Department-у, универзитета New Jersey Institute of Technology, Newark, New Jersey. На овом факултету он предаје курс “Network Modeling” на постдипломским студијама.

## **2. Објављени радови, пројекти и учешће на саветовањима:**

### **Поглавља**

1. D. Cavendish, A. Kolarov and B. Sengupta, “Minimizing the Number of Wavelength Conversions in WDM Networks with Hybrid Optical Cross-Connects,” to appear in *Edited Volume of the Selected Papers from the Seventh Inform's Telecommunications Conference*, Telecommunications Planning: Innovations in Pricing, Network Design and Management, S. Raghavan and G. Anandalingam (editors), Springer, Nov.2005, pp. 203-224.

### **Журнали**

2. A. Kolarov and G. Ramamurthy, “A Control-Theoretic Approach to the Design of an Explicit Rate Controller for ABR Service,” *IEEE/ACM Trans. Networking*, vol. 7, no. 5, pp. 741-753, Oct. 1999.
3. A. Kolarov, G. Ramamurthy, T. Takamichi, and T. Murase, “Comparison of Three Policing Algorithms for ABR Conformance,” *Journal of the Brazilian Comp. Soc.*, vol. 5, no. 3, pp. 26-36, Apr. 1999.
4. A. Kolarov and G. Ramamurthy, “Comparison of Explicit Rate and Explicit Forward Congestion Indication Flow Control Schemes for ABR Service in Wide Area Networks,” *Performance Evaluation Journal*, vol. 31, no. 1-2, pp. 89-106, Nov. 1997.
5. A. Kolarov and J. Hui, “On Computing Markov Decision Theory-Based Cost for Routing in Circuit-Switched Broadband Networks,” *Journal of Network and Systems Management*, vol. 3, no. 4, pp. 405-426, Dec. 1995.

### **Радови**

6. A. Kolarov and B. Sengupta, “A Study of Waveband Routing and Wavelength Assignment in Multi-Granular Hybrid Optical Networks,” in *Proc. IEEE ICC 2005*, Seoul, Korea, May 2005, pp. 239-243.
7. A. Kolarov, T. Wang, B. Sengupta, and M. Cvijetic, “Impact of Waveband Switching on Dimensioning Multi-Granular Hybrid Optical Networks,” in *Proc. IEEE ONDM 2005*, Milan, Italy, Feb. 2005, pp. 371-381.
8. A. Kolarov, B. Sengupta, and A. Iwata “Design of Multiple Reverse Spanning Trees in Next Generation of Ethernet-VPNs,” in *Proc. IEEE Globecom 2004*, Dallas, Texas, Dec. 2004, pp. 1390-1395.
9. D. Cavendish, A. Kolarov, and B. Sengupta, “Routing and Wavelength Assignment in WDM Mesh Networks,” in *Proc. IEEE Globecom 2004*, Dallas, Texas, Dec. 2004, pp. 1016 - 1022.

10. D. Cavendish, A. Kolarov, and B. Sengupta, "Is It a Good Idea to Design WDM Networks to Minimize the Number of Wavelengths Used?," in *Proc. IEEE ICC 2004*, Paris, France, June 2004, pp. 2097-2101.
11. D. Cavendish, A. Kolarov, and B. Sengupta, "Minimizing the Number of Wavelength Conversions in WDM Networks with Hybrid Optical Cross-Connects," *The Seventh Informatics Telecommunications Conference*, Boca Raton, Florida, Mar. 2004, pp 182-184.
12. A. Kolarov and B. Sengupta, "Waveband Routing and Wavelength Assignment in Hybrid Hierarchical Optical Networks," in *Proc. 18th International Teletraffic Congress*, Berlin, Germany, Sep. 2003, pp. 911-920.
13. A. Kolarov and B. Sengupta, "An Algorithm for Waveband Routing and Wavelength Assignment in Hierarchical WDM Mesh Networks," in *Proc. IEEE High Performance Switching and Routing Workshop 2003*, Torino, Italy, June 2003, pp. 29-36.
14. A. Kolarov, R. Fan, and C. Lu, "Global and Dynamic Round-Robin Scheduler for Terabit Routers," in *Proc. IEEE ICC 2003*, Anchorage, Alaska, May 2003, pp. 1641-1647.
15. R. Izmailov, A. Kolarov, R. Fan, and S. Araki, "Hierarchical Optical Switching: A Node-Level Analysis," in *Proc. IEEE High Performance Switching and Routing Workshop 2002*, Kobe, Japan, May 2002, pp.309-313.
16. A. Kolarov, "The OPNET Simulation Model for ATM Passive Optical Networks," in *Proc. IEEE CAMAD2002*, New York City, May 2002, <http://netlab.caltech.edu/CAMAD02/>.
17. A. Kolarov, "Study of the TCP/UDP Fairness Issue for the Assured Forwarding Per Hop Behavior," in *Proc. IEEE High Performance Switching and Routing Workshop 2001*, Dallas, Texas, May 2001, pp.190-196.
18. A. Kolarov, "IP QoS Architecture," in *Carrier IP Telephony 2000 Comprehensive Report*, International Engineering Consortium, 2000, pp. 125-130.
19. J. P. Redlich, M. Suzuki, A. Kolarov, and S. B. Weinstein, "IP Services Creation in a Programmable Router," in *First IEEE/Popov Workshop on Internet Technologies and Services*, Moscow, Russia, Oct. 1999, pp. 51-61.
20. A. Kolarov, G. Ramamurthy, T. Takamichi, and T. Murase, "Impact of Misbehaving Users and the Role of Policers in ABR Service," in *Proc. IEEE GLOBECOM 1998*, Sydney, Australia, Nov. 1998, pp.1533-1540. Kolarov, G. Ramamurthy, T. Takamichi, and T. Murase, "Comparison of Three Policing Algorithms for ABR Conformance," in *Proc. IEEE CAMAD 1998*, Sao Paulo, Brazil, Aug. 1998, pp. 27-36.
21. A. Kolarov and G. Ramamurthy, "A Testbed Implementation of Explicit Rate Based ABR Service via a Dual Proportional-plus-Derivative Controller," in *Proc. IEEE GLOBECOM 1997*, Phoenix, AZ, Nov. 1997, pp. 806-811.
22. G. Ramamurthy and A. Kolarov, "Application of Control Theory for the Design of Closed Loop Rate Control for ABR Service," in *Proc. 15th International Teletraffic Congress*, Washington, DC, June 1997, pp. 751-760.
23. A. Kolarov and G. Ramamurthy, "An Implementation Study of Dual Proportional-plus-Derivative Controller for Explicit Rate Based ABR Service," in *Proc. IEEE ATM 1997 Workshop*, Lisboa, Portugal, May 1997, pp. 368-377.
24. A. Kolarov and G. Ramamurthy, "A Control Theoretic Approach to the Design of Closed Loop Rate Based Flow Control for High Speed ATM Networks," in *Proc. IEEE INFOCOM 1997*, Kobe, Japan, Apr.1997, pp. 293-301.
25. K. Sohraby and A. Kolarov, "A Mathematical Model for Representing Aggregate Traffic in Mobile Networks," in *Proc. ICPMSC 1996*, Hong Kong, Dec. 1996, pp. 48-51.
26. A. Kolarov and G. Ramamurthy, "Comparison of Explicit Rate and Explicit Forward Congestion Indication Flow Control Schemes for ABR Service in Wide Area Networks," in *Proc. IFIP-IEEE Conf. On Broadband Commun.* 1996, Montreal, Canada, Apr. 1996, pp. 123-134.

28. Kolarov and G. Ramamurthy, "Comparison of Explicit Rate and Explicit Forward Congestion Indication Flow Control Schemes for ABR Service," in *Proc. 1996 Int. Zurich Seminar on Digital Commun.*, Zurich, Switzerland, Feb. 1996, pp. 347-358.
29. Kolarov and S. Weinstein, "Flexible Bandwidth Allocation in Hybrid Fiber Coax Distribution Networks," in *Proc. IEEE GLOBECOM 1995*, Singapore, Nov. 1995, pp. 983-987.
30. Kolarov, G. Ramamurthy, and V. Bansal, "Implementation of congestion control schemes for ABR Service in an ATM local area network testbed," in *Proc. SPIE 1995*, Philadelphia, PA, Oct. 1995, vol.2608, pp. 209-217.
31. S. Maric and A. Kolarov, "Threshold Based Admission Control Policies for Multi-Rate Services in the DECT System," in *Proc. IEEE PIMRC 1995*, Toronto, Canada, Sep. 1995, pp. 1089-1093.
32. Kolarov and G. Ramamurthy, "End-to-end Adaptive Rate Based Congestion Control Scheme for ABR Service in Wide Area ATM Networks," in *Proc. IEEE ICC 1995*, Seattle, WA, June 1995, pp. 138-143.
33. Kolarov and J. Hui, "Least Cost Routing in Multi-Service Networks: Part II," in *Proc. IEEE INFOCOM 1995*, Boston, MA, Apr. 1995, pp. 289-296.
34. Kolarov, A. Atai, and J. Hui, "Application of Kalman Filter in High-Speed Networks," in *Proc. IEEE GLOBECOM 1994*, San Francisco, CA, Dec. 1994, pp. 624-628.
35. Kolarov and G. Ramamurthy, "Comparison of Congestion Control Schemes for ABR Service in ATM Local Networks," in *Proc. IEEE GLOBECOM 1994*, San Francisco, CA, Dec. 1994, pp. 913-918.
36. Kolarov and J. Hui, "Least Cost Routing in Multiple-Service Networks," in *Proc. IEEE INFOCOM 1994*, Toronto, Canada, June 1994, pp. 1483-1489.
37. Kolarov and J. Hui, "CANeT: An Object-Oriented Tool for Link and Network Design, Analysis, and Simulation," in *Proc. IEEE CAMAD 1994*, Princeton, NJ, Apr. 1994, pp. 29-31.
38. Kolarov and J. Hui, "Dynamic Routing in Multiple-Service Networks," in *Proc. 27th CISS*, John Hopkins Univ., Baltimore, MD, Mar. 1993, pp. 689-694.
39. Kolarov and J. Hui, "Modeling and Kalman type prediction of traffic fluctuations in multiple-service networks," in *Proc. 1st IEEE Reg. Control Conf.*, Polytechnic Univ., Brooklyn, NY, July 1992, pp. 162-165.
40. Kolarov and J. Hui, "Least-Cost-Routing on Symmetrical Loss Networks," in *Proc. 26th CISS*, Princeton Univ., NJ, Mar. 1992, pp. 935-940.
41. Kolarov, N. Gluhajic, and V. Zivkovic, "Design of Kalman Filter for Targets Tracking," in *Proc. ETAN*, Bled, Yugoslavia, June 1987.
42. R. Krtolica and A. Kolarov, "Design of the Tracking Filter using Spline Functions," in *Proc. ETAN*, Herceg Novi, Yugoslavia, June 1986.
43. M. Matausek, N. Gluhajic, and A. Kolarov, "Design of Optimal Controller for one Electro-Hydraulic System," in *Proc. ETAN*, Herceg Novi, Yugoslavia, June 1986.

## Конференције

44. A. Kolarov and G. Ramamurthy, "Design of a Closed Loop Feedback Control for ABR Service," *SIAM Annual Meeting 1996*, Kansas City, Missouri, Jul. 1996. (invited paper)
45. Kolarov and G. Ramamurthy, "An ATM Network Simulator for Design, Analysis, and Simulation of Congestion Control Schemes," *IEEE Symposium on Planning and Design of Broadband Networks*, Montebello, Canada, Oct. 1994.
46. Kolarov and J. Hui, "Circuit Access Policies in Loss Multiple-Service Networks: A Markov Decision Approach," *TIMS/ORSA Joint National Meeting*, Chicago, IL, May 1993.
47. Kolarov and J. Hui, "CANeT: An Object-Oriented Integrated Network Design and Control Tool," *The Second ORSA Telecommunications Conference*, Boca Raton, Florida, Mar. 1992.

48. Invited Talks "A Study of Waveband Routing and Wavelength Assignment in Multi-Granular Hybrid Optical Networks,"

#### **Стручно усавршавање:**

- Introduction to Service Oriented Architecture (SOA) and Web Services.
- Introduction to Android Software Platform.
- Mastering Long Term Evolution (LTE).
- Project Management.

#### **Радови објављени у журналима:**

- Kolarov and Gi Tae Kim, "An OPNET based Novel Cross-layer Model for Analyzing SOA-based Information Services," *Singidunum Journal of Applied Sciences*, vol. 9, no. 1, Apr. 2012.

#### **Радови објављени у конференцијским proceedings-има:**

- R. Vaidyanathan, Gi Tae Kim, A. Kolarov, F. Caruso, G. Forbes, "A Novel Cross-Layer Modeling Framework for Analyzing SOA-based Information Services," in *Proc. MILCOM 2011*, Baltimore, USA, Nov. 2011. pp. 2019 - 2024.
- P. Gurung, K. Chang, S. Samtani, L. Wong, A. Kolarov, D. Foote, A. Staikos, M. Patel, "Performance of QoS System for Future Battlefield Networks," in *Proc. MILCOM 2009*, Boston, USA, Oct. 2009. pp. 1-6.

#### **Презентације на конференцијама:**

- A. Kolarov, "A Novel Cross-Layer Modeling Framework for Analyzing SOA-based Information Services," *Network 2011*, Valjevo, Serbia, June 2011.
- A. Kolarov, "Is Your Network Really Secure?," *Network 2010*, Valjevo, Serbia, June 2010

#### **Учествовање у организацији конференција:**

Technical Program Committee Member for IEEE High Performance Switching and Routing (HPSR) 2013 Conference, Taipei, Taiwan, July 8 - July 11, 2013.

- Technical Program Committee Member for IEEE ICC 2013 Conference - Communications QoS, Reliability, and Performance Modeling Symposium, Budapest, Hungary, June 9 - June 13, 2013.
- Publication Chair for High Performance Switching and Routing (HPSR) 2012 Conference, Belgrade, Serbia, June 24 - June 27, 2012.
- Tutorial Chair for IEEE Sarnoff Symposium 2012, Newark, May 21 - May 22, 2012.
- Technical Program Committee Member for IEEE High Performance Switching and Routing (HPSR) 2011 Conference, Cartagena, Spain, July 4 - July 6, 2011.
- Technical Program Committee Member for IEEE ICC 2011 Conference - Communications QoS, Reliability, and Performance Modeling Symposium, Kyoto, Japan, June 5 - June 9, 2011.
- Technical Program Committee Member for IEEE HPSR 2010 Conference - Dallas, USA, June 13 - June 16, 2010.

- Technical Program Committee Member for IEEE ICC 2010 Conference - Communications QoS, Reliability, and Performance Modeling Symposium, Cape Town, South Africa, May 23 - May 27, 2010.
- Technical Program Committee Member for IEEE Globecom 2009 Conference - Communications Quality of Service, Reliability and Performance Modeling Symposium, Honolulu, USA, Nov. 30 - Dec. 4, 2009.
- Technical Program Committee Member for IEEE HPSR 2009 Conference - Paris, France, June 22 – June 24, 2009.
- Technical Program Committee Member for IEEE ICC 2009 Conference - Communications QoS, Reliability, and Performance Modeling Symposium, Dresden, Germany, June 14 - June 18, 2009.
- Technical Program Committee Member for IEEE Globecom 2008 Conference - Next Generation Networks, Protocols, and Services Symposium, New Orleans, USA, Nov. 30 - Dec. 4, 2008.
- Technical Program Committee Member for IEEE HPSR 2008 Conference - Beijing, China, May 2008.
- Technical Program Committee Member for IEEE ICC 2008 Conference - Communications QoS, Reliability, and Performance Modeling Symposium, Beijing, China, May 2008.