

Lincy Professor

Dept of Electrical & Computer Engineering
University of Nevada, Las Vegas
4505 S. Maryland Parkway
Las Vegas, NV 89154-4026

Director, Mendenhall Innovation Program

Howard R. Hughes College of Engineering
University of Nevada, Las Vegas
4505 S. Maryland Parkway
Las Vegas, Nevada 89154-4007

Adjunct Professor UNLV School of Medicine

Adjunct Professor Entertainment Engineering and Design, UNLV

EDUCATION

University of California, Berkeley

Ph.D., Mechanical Engineering, 1993;

Advisor: Dr. Masayoshi Tomizuka, Cheryl and John Neerhout, Jr., Distinguished Professor

Title: Nonlinear Control Strategies and Vehicle Traction Control

Virginia Tech, Blacksburg, VA

Ph.D., Mathematics, 2007: Advisor: Professor Joseph A. Ball

Title: Optimal and Feedback Control for Hyperbolic Conservation Laws

University of Nevada Las Vegas

Ph.D. Candidate (ABD), Physics, 2020: Advisor: Professor Bernard Zygelman

Title: Gödel's Incompleteness and Gentzen's Consistency Theorems in Quantum Logic and Quantum Computation

Rice University, Houston, TX

M.S., Mechanical Engineering, 1990: Advisor: Professor John Cheatham

Title: Ultrasound Technique for Tissue Differentiation

Virginia Tech, Blacksburg, VA

M.S., Mathematics, 2004: Advisor: Professor Joseph A. Ball

University of Nevada Las Vegas

M.S., Physics, 2020: Advisor: Professor Bernard Zygelman

Title: An Introduction to the Exposition on Soundness, Completeness, and Decidability in Quantum Logic and Quantum Computation

Indian Institute of Technology (I.I.T.), Delhi, India

M.S. Candidate, Traffic Safety, 2023: Advisor: Professor Geetam Tiwari and Dr. Ramachandra Kalaga Rao

Title: Traffic Safety: Enhanced Vehicle Modeling for Surrogate Safety Measures

Indian Institute of Technology (I.I.T.), Bombay, India

B. Tech., Civil Engineering, 1988: Advisor: Professor S. L. Dhingra

Topic: Operations Research methods in Transportation

PROFESSIONAL ENGINEERING LICENSE (P.E.)

State of Ohio, Electrical Engineering (Control Systems), 1995

State of California, Electrical Engineering (Control Systems), 2010

AWARDS

- Professor of the Year, Student Award, (UNLV Tau Beta Pi/Nevada Beta), 2018.
- Faculty Advisor for First Place Interdisciplinary (Toast,ER), Electrical and Computer Engineering, Senior Design, COE, UNLV, 2017.
- Best paper GIKA (Global Innovation and Knowledge Academy) award for USA authors, GIKA Conference, March 2016, Valencia, Spain (Anjala Krishen, Orié Berezan, Shaurya Agarwal, Pushkin Kachroo, "The generation of virtual needs: Recipes for satisfaction in social media networks")
- Faculty Advisor for First Place and Commercial Potential (Tactical Trigger Training)), Electrical and Computer Engineering, Senior Design, COE, UNLV, 2015.
- College Distinguished Researcher Award, Howard R. Hughes College of Engineering, UNLV, 2014
- Barrick Distinguished Scholar Award, UNLV 2014
- Lincy Chaired Professorship, UNLV 2012
- Faculty Excellence Award, UNLV CSUN, 2010-2011
- Certificate of Teaching Excellence, 2006, College of Engineering, Virginia Tech.

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Adjunct Professor UNLV School of Medicine

Adjunct Professor Entertainment Engineering and Design, UNLV

- Outstanding New Professor 2001, College of Engineering, Virginia Tech
- Dean's List of Teachers with high Teaching Evaluations (Virginia Tech. multiple times)

Journal Editorship and Boards of Directors

Board of Directors, Fresh Gravity (🏠: <http://www.freshgravity.com>), (since 2/4/2016)
IEEE Transactions on Intelligent Transportation Systems (Associate Editor)
Journal of Marketing Analytics (Board of Directors)
Journal of Computer Science and Software Application

RESEARCH AREAS

Theoretical and Applied Feedback Control: Networks and Complex Data Driven Secure Systems, Nonlinear and hybrid control systems, Intelligent Transportation Systems, Traffic and Vehicle Control, Statistics and Random Processes, Mechatronics, Robotics, Distributed Parameter Systems, Differential geometric Methods, Feedback control in E-marketing, education and learning

WORK EXPERIENCE

2008-Present Professor, Department of Electrical & Computer Engineering, UNLV
2022-2023 Visiting Professor, Indian Institute of Technology Delhi
2022 and 2023 Summer Visiting Professor, Indian Institute of Technology Bombay
2022 Summer Visiting Professor, Indian Institute of Technology Jammu
2022-Present Adjunct Professor, Entertainment Engineering & Design, UNLV
2017-Present Adjunct Professor, UNLV School of Medicine
2014-Present Director, Mendenhall Innovation Program, Howard R. Hughes College of Engineering, UNLV
2013-2014 Visiting Professor, University of California at Berkeley
2012-2015 Lincoy Chaired Professorship, Transportation, UNLV
2011-2014 Assoc. Director, Mendenhall Innovation Program, Howard R. Hughes College of Engineering, UNLV
2010-2014 Director Transportation Research Center, UNLV
2008-2010 Co-director Transportation Research Center, UNLV
2007-2008 Visiting Associate Professor, Department of Electrical & Computer Engineering, UNLV
2003-2007 Associate Professor, Bradley Department of Electrical & Computer Engineering, Virginia Tech
1997-2003 Assistant Professor, Bradley Department of Electrical & Computer Engineering, Virginia Tech
1994-1998 Research Scientist, Center for Transportation Research, Virginia Tech
1992-1994 Research and Development Engineer, Lincoln Electric Co., Robotics and Automation
1991-1992 Research Assistant, (during Ph.D. program), University of California, Berkeley
1989-1991 Research Assistant, (during M.S. program), Baylor College of Medicine, and Rice University

BOOKS

1. Pushkin Kachroo and Kaan Özbay. *Feedback control theory for dynamic traffic assignment, second edition*. Springer Science, 2018
2. Sabiha Wadoo and Pushkin Kachroo. *Autonomous underwater vehicles: modeling, control design and simulation*. CRC Press, 2010
3. Apporva Shende, Mahendra Singh, and Pushkin Kachroo. *Pedestrian Evacuation from Networks: A Feedback Control Approach*. VDM Verlag, 2010
4. Pushkin Kachroo. *Pedestrian dynamics: Mathematical theory and evacuation control*. CRC Press, 2009
5. Patricia Mellodge and Pushkin Kachroo. *Model abstraction in dynamical systems: Application to mobile robot control*. Springer, 2008

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6. Pushkin Kachroo, Sadeq J Al-Nasur, Sabiha Amin Wadoo, and Apoorva Shende. *Pedestrian dynamics: Feedback control of crowd evacuation*. Springer, 2008
 7. Ferat Sahin and Pushkin Kachroo. *Practical and experimental robotics*. CRC Press, 2007
 8. Pushkin Kachroo and Patricia Mellodge. *Mobile robotic car design*. McGraw-Hill Companies, Inc., 2004
 9. Pushkin Kachroo and Kaan Özbay. *Feedback ramp metering in intelligent transportation systems*. Springer, 2003
 10. Kaan Ozbay and Pushkin Kachroo. *Incident management in intelligent transportation systems*. Artech House Publishers, 1999
 11. Pushkin Kachroo and Kaan MA Özbay. *Feedback control theory for dynamic traffic assignment*. Springer Science, 1999

EDITED VOLUMES

1. Chase H. Kenyon and Pushkin Kachroo (Eds.), *Mobile Robots XI and Automated Vehicle Control Systems*, SPIE Vol. 2903, 1996.
2. Martin J. De Vries, Pushkin Kachroo, Kaan Ozbay, and Alan C. Chachich (Eds.), *Intelligent Transportation Systems*, SPIE Vol. 3207, 1997.
3. Howie M. Choset, Douglas W. Gage, Pushkin Kachroo, Mikhail A. Kourjanski, and Marten J. de Vries, *Mobile Robots XIII and Intelligent Transportation Systems*, SPIE Vol. 3525, 1998.
4. Pushkin Kachroo, Kaan Ozbay, and Anjala S. Krishen, *International Journal of Computer Applications in Technology (IJCAT), Special Issue on: Multi-disciplinary Problems, Models, and Feedback Control Designs*, 2008.

BOOK CHAPTERS

1. Pushkin Kachroo and Neveen Shlayan, “Dynamic Traffic Assignment: A Survey of Mathematical Models and Techniques,” *Advances in Dynamic Network Modeling in Complex Transportation Systems*, Complex Networks and Dynamic Systems, Springer, Volume 2, 2013, pp 1-25.
2. Ilgin Gokasar, Kaan Ozbay, and Pushkin Kachroo, “Coordinated Feedback-Based Freeway Ramp Metering Control Strategies “C-MIXCROS and D-MIXCROS” that Take Ramp Queues into Account,” *Advances in Dynamic Network Modeling in Complex Transportation Systems* Complex Networks and Dynamic Systems, Springer, Volume 2, 2013, pp 67-88.
3. Kaan Ozbay and Pushkin Kachroo, “Incident and Emergency Management in Traffic,” *The SAGE Handbook of Transport Studies*, Sage Publications, June 2013.
4. Anjala S. Krishen, Robyn L. Raschke, and Pushkin Kachroo, “Control Creates Comfort: The Importance of Proactive Response to Privacy Concerns,” *Let’s Get Engaged! Crossing the Threshold of Marketing’s Engagement Era*. Springer International Publishing, 2016. 515-516.
5. Krishen A.S., Kachroo P., Agarwal S. (2016) Paving the Way to a Safety Culture: Introducing a Hierarchical Feedback-Based Framework. In: Kim K. (eds) *Celebrating America’s Pastimes: Baseball, Hot Dogs, Apple Pie and Marketing? Developments in Marketing Science: Proceedings of the Academy of Marketing Science*. Springer.

JOURNAL PUBLICATIONS

1. Pushkin Kachroo, and Masayoshi Tomizuka, “Chattering Reduction and Error Convergence in the Sliding Mode Control of a Class of Nonlinear Systems,” *IEEE Transactions on Automatic Control*, Vol. 41, no. 7, pp. 1063-1068, July 1996.
2. Pushkin Kachroo and Kaan Ozbay, “Real Time Dynamic Traffic Routing Based on Fuzzy Feedback Control Methodology,” *Transportation Research Record* 1556, pp. 137-146, 1996.
3. Cem Unsal, Pushkin Kachroo, and John S. Bay , “Simulation Study of Multiple Intelligent Vehicle Control Using Stochastic Learning Automata,” *Transactions of the Society for Computer Simulation International*, Volume 14, No. 4, pp.193-210, December, 1997.
4. Pushkin Kachroo, “Microprocessor Controlled Small Scale Vehicles for Experiments in Automated Highway Systems,” *The Korean Transport Policy Review*, Vol. 4, No. 3, pp. 145-178, 1997.

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5. Unsal, Cem, Pushkin Kachroo, and John S. Bay. "Simulation study of multiple intelligent vehicle control using stochastic learning automata." *Transactions of the Society for Computer Simulation* 14.4 (1997): 193-210.
 6. Pushkin Kachroo and Kaan Ozbay, "Solution to the User Equilibrium Dynamic Traffic Routing Problem using Feedback Linearization," *Transportation Research: Part B*, Vol. 32, No. 5, pp. 343-360, 1998.
 7. Pushkin Kachroo, Kaan Ozbay, Sungkwon Kang, and John A. Burns, "System Dynamics and Feedback Control Formulations for Real Time Dynamic Traffic Routing," *Mathl. Comput. Modelling*, Vol. 27, No. 9-11, pp. 27-49, 1998.
 8. Joseph A. Ball, Martin V. day, Pushkin Kachroo, and Tungsheng Yu, "Robust L2-gain control for Nonlinear Systems with Projection Dynamics and Input Constraints: An Example from Traffic Control," *Automatica the Journal of International Federation of Automatic Control (IFAC)*, Vol. 35, pp. 429-444, 1999.
 9. Cem Unsal and Pushkin Kachroo, "An Analytical Observer Based Design for Antilock Braking," *IEEE Transactions on Control Systems Technology*, Vol. 7, No. 2, pp. 271-281, 1999.
 10. Pushkin Kachroo, Joseph A. Ball, and Arthur Krener, " H_∞ Tracking Control for a Class of Nonlinear Systems," *IEEE Transactions on Automatic Control*, Vol.44, No.6, pp. 1202-1206, June 1999.
 11. Pushkin Kachroo, "Existence of Solutions to a Class of Nonlinear Convergent Chattering Free Sliding Mode Control Systems," *IEEE Transactions on Automatic Control*, Vol.44, No.8, pp. 1620-1624, Aug. 1999.
 12. Joseph Ball, Marty Day, and Pushkin Kachroo, "Robust Feedback Control of a Single Server Queueing System," *Mathematics of Control, Signal, and Systems*, vol. 12, pp. 307-345, 1999.
 13. Pushkin Kachroo, Michael Van Aerde, and Kumar Krishen, "Feedback Control Design for Intelligent Transportation Systems," *Transactions of the SDPS, Journal of Integrated Design & Process Science*, No. 4, pp. 31-39, Dec. 1999.
 14. Cem Unsal, Pushkin Kachroo, and John S. Bay, "Multiple Stochastic Learning Automata for Vehicle Path Control in an Automated Highway System," *IEEE Transactions on Systems, Man, and Cybernetics - Part A, Systems and Humans*, Vol. 29, No. 1, pp. 120-128, January 1999.
 15. Pushkin Kachroo, and Kumar Krishen, "System Dynamics and Feedback Control Design Formulations for Real Time Ramp Metering," *Transactions of the SDPS, Journal of Integrated Design & Process Science*, Vol. 4, No. 1, pp. 37-54, March 2000.
 16. Pushkin Kachroo, Samy Shedied, John S. Bay, and Hugh Vanlandingham, "Dynamic Programming Solution for a Class of Pursuit Evasion Problems: The Herding Problem," *IEEE Trans. on Systems, Man, and Cybernetics, Part C*, Vol. 31, Issue. 1, pp. 35-41, Feb 2001.
 17. Binoy Ravindran, Pushkin Kachroo, and Tamir Hegazy, "Intelligent Feedback Controlbased Adaptive Resource Management for Asynchronous, Decentralized Real-Time Systems," *IEEE Trans. on Systems, Man, and Cybernetics, Part C*, Vol. 31, No. 02, pp. 261-265, 2001.
 18. Kaan Ozbay, Datta Aleek, Pushkin Kachroo, "Route Choice Behavior Using Stochastic Learning Automata," *Transportation Research Record: Journal of the Transportation Research Board*. No. 1752, pp. 38-46, 2001.
 19. Pushkin Kachroo, Samy Shedied, and Hugh Vanlandingham, "Pursuit Evasion: The Herding Non-cooperative Dynamic Game," *Transactions of the SDPS, Journal of Integrated Design & Process Science*, Vol. 6, No. 1, pp. 31-42, March 2002.
 20. Pushkin Kachroo, Samy Shedied, and Hugh Vanlandingham, "Pursuit Evasion: The Herding Non-cooperative Dynamic Game: The Stochastic Model," *IEEE Transactions on Systems, Man, and Cybernetics, Part C*, Vol. 32, Issue. 1, pp. 37-42, February 2002.
 21. Kaan Ozbay, Datta Aleek, Pushkin Kachroo, "Application of Stochastic Learning Automata for Modeling Departure Time and Route Choice Behavior," *Journal of Transportation Research Board*, paper no. 02-2529, pp. 154-162, 2002.
 22. Al-Mousa, A. H. Nayfeh and Pushkin Kachroo, "Control of Rotary Cranes using Fuzzy Logic," *ASME Shock and Vibration Journal*, vol. 10., No. 2, 2003, pp. 81-95.
 23. Patricia Mellodge and Pushkin Kachroo, "Scaled Instrumented Vehicle System: Modeling, Control, and Hardware," *IJVAS (International Journal of Vehicle Autonomous Systems)*, Special Issue on Autonomous Road Vehicles , IJVAS V2 N1-2 2004.
 24. Kaan Ozbay, Ilgin Yasar, and Pushkin Kachroo, "Comprehensive Evaluation of Feedback Based Freeway Ramp Metering Strategy by Using Microscopic Simulation: Taking Ramp Queues into Account," *Transportation Research Record*, No. 1867, pp. 89-96, August 2004

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25. Pushkin Kachroo and Kaan Ozbay, "Feedback Control Solutions to Network Level User-Equilibrium Real-Time Dynamic Traffic Assignment Problems," *Networks and Spatial Economics*, Volume 5, Number 3, September 2005, pp. 243-260(18).
 26. Kachroo, P., and Ozbay, K., Feedback Control Solutions to Network Level System Optimal Real-Time Dynamic Traffic Assignment Problems. *Journal of Intelligent Transportation Systems*, pages 159-171, Vol. 10, Issue 4, 2006.
 27. Sabiha Wadoo and Pushkin Kachroo, "Feedback Control of an Underwater Vehicle: Trajectory Tracking," *i-manager's Journal on Electrical Engineering*, October - December 2007 issue.
 28. Pushkin Kachroo, Sabiha Wadoo, Sadeq Al-nasur, Apoorva Shende, M.P. Singh and Kaan Ozbay "Information Technology Requirements for Intelligent Evacuation Systems," *World Review of Intermodal Transportation Research*, Volume 2, Number 2-3, pages 127 - 144, 2009.
 29. Reza Kheirandish, Anjala S. Krishen, and Pushkin Kachroo, "Application of Optimal Control Theory in Marketing: What is the Optimal Number of Choices on a Shopping Website?," *International Journal of Computer Applications in Technology*, Volume 34, Issue 3, pages 207-215, 2009.
 30. Vinod Lohani and Pushkin Kachroo, "A Conceptual Model for Feedback Control based Instruction and Evaluation," *International Journal of Computer Applications in Technology*, Volume 34, Issue 3, pages 199-206, 2009.
 31. Kaan Ozbay, Weihua Xiao, Bekir Bartin, Gaurav Jaiswal, and Pushkin Kachroo, "Evaluation of Incident Management Strategies and Technologies using an Integrated Traffic/Management Simulation," *World Review of Intermodal Transportation Research* Vol. 2, No.2/3, pages 155-186, 2009.
 32. Ricky T. Castles, T. Zephirin, Vinod K. Lohani, Pushkin Kachroo, "Design and Implementation of a Mechatronics Learning Module in a Large First-Semester Engineering Course," *IEEE Transactions on Education*, vol. 53, issue 3, pp. 445-454, 2009.
 33. P. Mellodge and Pushkin Kachroo, "Uncertainty Propagation in Control Systems Via the Liouville Equation," *International Journal of Modelling, Identification and Control*, vol. 9, no. 4, pp. 392-399, 2010.
 34. P. Mellodge and Pushkin Kachroo, "Uncertainty Propagation in abstracted Systems via Liouville Equation," *Journal of Dynamic Systems, Measurement, and Control*, vol. 132, no. 4, July 2010..
 35. Sabiha Wadoo and Pushkin Kachroo, "Feedback Control of Crowd Evacuation in One Dimension," *IEEE Transactions on Intelligent Transportation Systems*, , pp 182-193, Vol 11, Issue 1, Mar, 2010.
 36. Neveen Shlayan and Pushkin Kachroo, "Formal Language Modeling and Simulations of Incident Management," *IEEE Transactions on Intelligent Transportation Systems*, pp 1226-1234, Vol 13, Issue 3, 2011.
 37. Apoorva Shende, M. P. Singh and Pushkin Kachroo, "Optimization-Based Feedback Control for Pedestrian Evacuation From an Exit Corridor," *IEEE Transactions on Intelligent Transportation Systems*, pp 1167-1176, Vol 12, Issue 2, 2011.
 38. Anjala S. Krishen, R. Raschke and P. Kachroo, "A feedback control approach to maintain consumer information load in online shopping environments," *Information & Management*, 48 (8), 344-352, 2011.
 39. Anjala S. Krishen, R. Raschke, P. Kachroo, M. LaTour, and P. Verma, "Promote me or protect us? The framing of policy for the collective good," *European Journal of Marketing*, 2013
 40. R. Raschke, A. S. Krishen, P. Kachroo, and P. Maheshwari, "A combinatorial optimization based sample identification method for group comparisons," *Journal of Business Research*, Volume 66, Issue 9, September 2013, Pages 1267-1271.
 41. Neveen Shlayan and Pushkin Kachroo, "Feedback Ramp Metering using Godunov Method based Hybrid Model," *the Journal of Dynamic Systems, Measurement and Control*, 5(135), 2013.
 42. Apoorva Shende, M. P. Singh and Pushkin Kachroo, "Optimal Feedback Flow Rates for Pedestrian Evacuation in a Network of Corridors," *IEEE Transactions on Intelligent Transportation Systems*, Vol. 14, Issue 3, 2013.
 43. Bhawna Sharma, Devanand, Pushkin Kachroo, "Robust Hybrid Feedback Control Design for Ramp Metering using Sliding Mode Control," *International Journal of Advanced Research in Computer Science*, vol. 4, No.9, 2013.
 44. Bhawna Sharma, Devanand, Pushkin Kachroo, "Robust Ramp Metering Design using Sliding Mode Control of a Hybrid Dynamical Model with Functional Uncertainties," *International Journal of Advanced Research in Computer and Communication Engineering*, Vol. 2, Issue 8, 2013.

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45. Neveen Shlayan, Vidhya Kumaresan, Pushkin Kachroo, Brian Hoeft, "Travel time Reliability Analysis Using Entropy," *International Journal of Advanced Research in Computer Science*, Sep/Oct2013, Vol. 4 Issue 10, p84-91. 8p.
 46. Alexander Paz, Pankaj Maheshwari, Pushkin Kachroo, Sajjad Ahmad, "Estimation of performance indices for the planning of sustainable transportation systems," *Journal Advances in Fuzzy Systems - Special issue on Fuzzy Logic Applications in Control Theory and Systems Biology*, Volume 2013, No. 2, 2013
 47. P. Maheshwari, R. Khaddar, P. Kachroo, A. Paz., "Dynamic Modeling of Performance Indices for the Planning of Sustainable Transportation Systems," *Networks and Spatial Economics*, Springer, 2014.
 48. A. S. Krishen, R. Raschke, P. Kachroo, M. Mejza, and A. Khan, "Interpretation of Public Feedback to Transportation Policy: A Qualitative Perspective," *Transportation Journal*. 53(1), 26-43, 2014.
 49. Vinod Vasudevan, Pushkin Kachroo, and Nirup Bandaru, "Nighttime seatbelt usage data collection: When and how long?," *IATSS Research*, Elsevier, <http://dx.doi.org/10.1016/j.iatssr.2014.04.001>, 2014
 50. Pushkin Kachroo, Lillian Ratliff, and Shankar Sastry, "Analysis of the Godunov Based Hybrid Model for Ramp Metering and Robust Feedback Control Design," *IEEE Transactions on Intelligent Transportation Systems*, vol.15, Issue 5., 2014.
 51. Krishen, A. S., R. Raschke, P. Kachroo, M. LaTour, and P. Verma (2014), "Promote me or protect us? The framing of policy for the collective good," *European Journal of Marketing*, 48 (3/4), 742-760.
 52. Raschke, R., A.S. Krishen, and P. Kachroo (2014), "Understanding the components of information privacy threats for location-based services," *Journal of Information Systems*, 28 (1), 227-242.
 53. Pushkin Kachroo, Neveen Shlayan, Sumit Roy, and Michael Zhang, "High Performance Vehicle Streams: Communication and Control Architecture," *IEEE Transactions on Vehicular Technology*, Volume:63 , Issue: 8, October 2014.
 54. Pushkin Kachroo, Neveen Shlayan, Alexander Paz, Shankar Sastry, and Shital K. Patel, "Model based Methodology for Validation of Traffic Flow-detectors by Minimizing Human Bias in Video Data Processing," *IEEE Transactions on Intelligent Transportation Systems*, vol 16, issue 4, pp 1851-1860, 2015.
 55. Shaurya Agarwal, Pushkin Kachroo, Sergio Contreras, and Shankar Sastry, "Feedback Coordinated Ramp Control of Consecutive On-Ramps using Distributed Modeling and Godunov Based Satisfiable Allocation," *IEEE Transactions on Intelligent Transportation Systems*, Vol.16 , No.5, pp 2384-2392, 2015.
 56. Pankaj Maheshwari, Pushkin Kachroo, Alexander Paz, and Romesh Khaddar, "Development of control models for the planning of sustainable transportation systems," *Transportation Research Part C: Emerging Technologies*, 55, pp 474-485, 2015.
 57. Anjala Krishen, Pushkin Kachroo, Shaurya Agarwal, Shankar Sastry, and Masha Wilson "Safety culture from an interdisciplinary perspective: Conceptualizing a hierarchical feedback-based transportation framework," *Transportation Journal*, Vol. 54, No. 4, pp. 516-534, 2015.
 58. Pushkin Kachroo, and Shankar Sastry "Travel Time Dynamics for Intelligent Transportation Systems: Theory and Applications," *IEEE Transactions on Intelligent Transportation Systems*, Volume: 17, Issue: 2, pages: 385-394, 2016.
 59. Pushkin Kachroo, and Shankar Sastry "Traffic Assignment using a Density based Travel Time Function for Intelligent Transportation Systems," *IEEE Transactions on Intelligent Transportation Systems*, Volume: 17, Issue: 5, Pages: 1438 - 1447, 2016.
 60. Sergio Contreras, Shaurya Agarwal, and Pushkin Kachroo "Traffic Observability Problem and Sensor Placement on Highway Segments: A Traffic Dynamics Based Approach," *IEEE Transactions on Intelligent Transportation Systems*, Volume: 17, Issue: 3, Pages: 848-858, 2016.
 61. Anjala Krishen, Shaurya Agarwal, Pushkin Kachroo, and Robyn L. Raschke, "Framing the value and valuing the frame? Algorithms for Child Safety-Set Use," *Journal of Business Research*, Volume 69, Issue 4, April 2016, Pages: 1503-1509.
 62. Shaurya Agarwal, Pushkin Kachroo, and Emma Regentova, "A Hybrid Model Using Logistic Regression and Wavelet Transformation to Detect Traffic Incidents," *IATSS Research*, Vol. 40, Issue 1, pages: 56-63 Elsevier, 2016.
 63. Pratik Verma, Hongtao Yang, Pushkin Kachroo, and Shaurya Agarwal, "Modeling and Estimation of Vehicle-miles Traveled (VMT) Tax Rate Using Stochastic Differential Equations," *IEEE Transactions on SMC-Systems*, Volume: 46, Issue: 6, Pages: 818 - 828, 2016.

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64. Shaurya Agarwal, Pushkin Kachroo, and Sergio Contreras “A Dynamic Network Modeling Based Approach for Traffic Observability Problem,” *IEEE Transactions on Intelligent Transportation Systems*, Volume: 17, Issue: 4, Pages: 1168 - 1178, 2016.
 65. Anjala Krishen, Orié Berezan, Shaurya Agarwal, Pushkin Kachroo, “The Generation of Virtual Needs: Recipes for Satisfaction in Social Media Networks,” *Journal of Business Research*, vol. 50, Issue 5/6, 2016.
 66. Pushkin Kachroo, Shaurya Agarwal, and Shankar Sastry “Inverse Problem for Non-viscous Mean Field Control: Example from Traffic,” *IEEE Transactions on Automatic Control*, vol. 61, No. 11, pp3412-3421, November, 2016.
 67. Krishen, A.S., S. Agarwal, and P. Kachroo, “Is having accurate knowledge necessary for implementing safe practices? A consumer folk theories-of-mind perspective on the impact of price,” *European Journal of Marketing* 50.5/6 (2016): 1073-1093.
 68. Pushkin Kachroo, Anjala S. Krishen, and Shaurya Agarwal, “Fuzzy Logic Programming based Knowledge Analysis for Qualitative Comparative Analysis,” (Springer) *International Journal of Methodology, Quality & Quantity*, vol. 51, No. 5, PP. 2101-2113, 2017.
 69. Pushkin Kachroo, Saumya Gupta, Shaurya Agarwal, and Kaan Ozbay, “Optimal Control for Congestion Pricing: Theory, Simulation and Evaluation,” *IEEE Transactions on Intelligent Transportation Systems*, Volume: 18, Issue:5, pages: 1234-1240, May 2017.
 70. Shaurya Agarwal, Emma Regentova, and Pushkin Kachroo “Multidimensional Compression of ITS Data Using Wavelet Based Compression Techniques,” *IEEE Transactions on Intelligent Transportation Systems*, vol. 18, No. 7, pp 1907-1917, 2017.
 71. Pushkin Kachroo, Shaurya Agarwal, Benedetto Piccoli, and Kaan Ozbay “Multi-scale Modeling and Control Architecture for V2X Enabled Traffic Streams,” *IEEE Transactions on Vehicular Technology*, Volume: 66, Issue: 6, Pages: 4616 - 4626, 2017.
 72. Verma, P., S. Agarwal, P. Kachroo, and A. Krishen, “Declining transportation funding and need for analytical solutions: dynamics and control of VMT tax,” *Journal of Marketing Analytics*, vol. 5, No. 3-4, pp. 131-140, 2017.
 73. Anjala Krishen, Robyn L. Raschke, Angeline G. Close, and Pushkin Kachroo, “A power-responsibility equilibrium framework for fairness: Understanding consumers’ implicit privacy concerns for location-based services,” *Journal of Business Research*, Vol. 73, PP. 20-29, 2017.
 74. Orié Berezan, Anjala Krishen, Shaurya Agarwal, and Pushkin Kachroo, “The pursuit of virtual happiness: Exploring the social media experience across generations,” *Journal of Business Research*, Volume 89, August 2018, Pages 455-461.
 75. Sergio Contreras, Shaurya Agarwal, and Pushkin Kachroo “Quality of Traffic Observability on Highways with Lagrangian Sensors,” *IEEE Transactions on Automation Science and Engineering*, Volume: 15, Issue: 2, Pages: 761 - 771, 2018.
 76. Pushkin Kachroo, and Anuj Sharma, “Theory of safety surrogates using vehicle trajectories in macroscopic and microscopic settings: Application to dynamic message signs controlled traffic at work zones,” *Transportation Research, Part C: Emerging Technologies*, Volume 91, June 2018, Pages 62-76.
 77. Pushkin Kachroo, and Sheen Kachen, “Item Placement for Questionnaire Design for Optimal Reliability,” *Journal of Marketing Analytics*, volume 6, Issue 4, December 2018.
 78. Robyn Raschke, Aaron Saiewitz, Jacob Lennard, and Pushkin Kachroo, “Auditbots, AI-enhanced audit inquiry: a research note,” *Journal of Emerging Technologies in Accounting*, DOI: 10.2308/jeta-52310, November 2018.
 79. Shaurya Agarwal, and Pushkin Kachroo “Controllability and Observability Analysis for Intelligent Transportation Systems,” *Transportation in Developing Economies*, Springer, 5:2, 2019, <https://doi.org/10.1007/s40890-018-0070-4>).
 80. Sergio Contreras, and Pushkin Kachroo “The Viscosity Solution for Hamilton Jacobi Travel Time Dynamics,” *IEEE Transactions on Intelligent Transportation Systems*, accepted Oct, 2019.
 81. Anjala Krishen, Orié Berezan, Shaurya Agarwal, and Pushkin Kachroo, “Exploring social network experiences in the U.S. and Vietnam: Content versus connection,” *Journal of Business Research*, Volume 101, August 2019, Pages 93-103.
 82. Orié Berezan, Anjala Krishen, Shaurya Agarwal, and Pushkin Kachroo, “Exploring loneliness and social networking: Recipes for hedonic well-being on Facebook,” *Journal of Business Research*, Volume 115, July 2020, Pages 258-265.

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83. Pushkin Kachroo, Aaron Saiewitz, Robyn Raschke, Shaurya Agarwal, and Jiheng Huang, "A New Language and Hidden Markov Input/Output Model for Automated Audit Inquiry," *IEEE Intelligent Systems*, 2020, Volume: 35, Issue: 6.
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2. ECE2504 Introduction to Computer Engineering-F03
3. ECE 2574 (CS2574) Data Structures & Software Engineering, Smr,F99
4. ECE4500 Fundamentals of Computer Systems F07
5. ECE4524 Pattern Recognition and A.I. Survey-F00-F01
6. ECE4535 Introduction to Microcontrollers (HC11)-Spr98
7. ECE4536 Microprocessor System Design II-Spr00-01
8. ECE4614 Telecommunication Networks-Spr00
9. ECE5554 Computer Vision-F02,F05
10. ECE6514 Automata Theory-Spr03

Electrical Engineering:

11. ECE2004 Electric Circuit Analysis-F06
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 24. ECE5404 Multivariable Control-Spr04
 25. ECE6404 Optimal Control Systems-F00,04
 26. ECE 6414 Nonlinear Systems and Control Spr99, F01,F03
 27. ECE6444 Hybrid Control Systems-Spr03
 28. ECE6444 Differential Geometry for Dynamic Systems-Spr05
 29. ECE 6444 Optimization Theory: Finite and Infinite Dimensional Systems, F06
 30. ECE6714 System Identification-Spr 02

UNLV Courses

Mathematics

1. MATH181, Calculus-I, F19, F21
2. MATH182, Calculus-II, F20, S21, F21
3. MATH283, (Multivariable/Vector) Calculus-III, Smr 20
4. MATH707 Real Analysis (Measure Theory) - I, F11
5. MATH708 Real Analysis (Real and Functional Analysis) - II, Sp12
6. MATH709 Complex Function Theory - I, F07
7. Math710 Complex Function Theory - II, Sp08

Physics

8. PHYS181, Physics for Scientists and Engineers-II, S21, F21
9. PHYS182, (Modern) Physics for Scientists and Engineers-III, S22

General Engineering

10. EGG101, Introduction to Engineering Experience, F18,S19,F19

Computer Engineering

11. CPE100 Digital Logic Design I, F16
12. CPE260 Advanced Mathematics for Computer Engineers, F11.F12
13. CPE407/ECG607 Biometrics, Sp08

Electrical Engineering

14. EE220 Electric Circuits, Smr08, Sp13
15. EE290 Intro to Electrical Engineering, Sp09,Sp10, F10
16. EE292 Electrical Engineering Fundamentals, Sp11,12,16,18 F17, Sp18
17. EE360 Signals and Systems I (Stochastic), F16
18. EE361 Signals and Systems II (Stochastic), Sp12, Sp17
19. EE370 Feedback Control, F08, Sp15, Smr16, Smr17, Smr18
20. EE430 Transmission Lines, F14
21. EE472/ECG672 Digital Control, F07,F14, F15
22. EE474/ECG695 Linear Systems, Sp08
23. EE475 Autonomous Systems and Control, Sp18
24. EE495/ECG695 Transportronics, Sp09, Sp11
25. EE495/ECG695 Bio-instrumentation, F07
26. EE495/ECG695 Signals and Systems for Computer Engineers, F10, Sp11
27. ECG760, Probability and Random Processes, F09

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28. ECG770, Linear Systems, F12
 29. ECG771, Optimal and Modern Controls, Sp13, Sp17
 30. ECG772, Nonlinear Systems, F08, F15
 31. ECG774, Stochastic Control, F17
 32. ECG791 Numerical Partial Differential Equations, Smr11
 33. ECG791 Probability Theory, Smr11
 34. ECG791 Stochastic Differential Equations, Smr11
 35. ECG795, Optimization: Theory and Applications, F09
 36. ECG795, Advanced Engineering Methods: Artificial Intelligence, Sp10
 37. ECG795, Seminar: Topology, Sp10
 38. ECG795, Hybrid Dynamics, Sp10
 39. ECG795, Functional Analysis: Optimization, Sp11
 40. ECG795, Nonlinear Dynamics and Control, F10
 41. ECG795, Transportation Systems, F10
 42. ECG795, Language, Automata, Machines, and Logic, Smr11

THESIS AND DISSERTATIONS DIRECTED

| <i>Student Name</i> | <i>Year</i> | <i>Topic (Degree)</i> |
|------------------------|-------------|--|
| Ming Qian | 1997 | Sliding Mode Controller Design for ABS system (M.S.) |
| R. Nagarajan | 1997 | Software Simulation for AHS (M.S.) |
| Pete Ramanata | 1998 | Optimal Vehicle Path Generator (M.S.) |
| David Mayhew | 1999 | Multi-rate Sensor Fusion:GPS & Kalman Filtering (M.S.) |
| Jason Lewis | 2000 | Reference Frame Regulation for a Biplaner Bicycle (M.S.) |
| Amjed Almousa | 2000 | Control of Rotary Cranes using Fuzzy Logic and Delay Feedback Control (M.S.) |
| M. AL-Aqrabawi | 2001 | Combat System Modeling: Large-Scale Software and Hardware Application Using UML (M.S.) |
| Surendranath Ramasubbu | 2001 | Reverse Software Engineering large Object Oriented Software Systems Using the UML Notation (M.S.) |
| Aditya Gadre | 2001 | Learning Strategies In Multi-Agent Systems (M.S.) |
| Richard D. Henry | 2001 | Ultrasonic Headway Control: Scaled Robotic Car (M.S.) |
| Samy Shedied | 2002 | Optimal Control for a Two Player Dynamic Pursuit Evasion Game; The Herding Problem (Ph.D.) |
| Patricia Mellodge | 2002 | Feedback Control for a Path Following Robotic Car (M.S.) |
| Marcos Donolo | 2002 | An ODE solver for constrained state spaces: with applications to hybrid-system simulations (M.S.) |
| Surabhi Gupta | 2002 | General Aviation Weather Instrument (M.S.) |
| Joseph Trout | 2003 | Trajectory Tracking of a Statically-stable Biped (M.S.) |
| Eric Moret | 2003 | Dynamic Modeling and Control of a Car-Like Robot (M.S.) |
| Sabiha Wadoo | 2003 | Feedback Control of Nonholonomic Systems (M.S.) |
| Teodora Erbes | 2004 | Stochastic Learning Feedback Hybrid Automata for Dynamic Power Management in Embedded Systems (M.S.) |
| Charles Lepple | 2004 | High-speed Sinusoidal Encoder Interpolation System (M.S.) |
| Mark Morton | 2004 | Traction Control, Scaled Automated Robotic Car (M.S.) |
| C. Corey Howells | 2004 | Game-Theory, Vehicular Collision Avoidance (M.S.) |
| Thomas A. Merrell | 2005 | Simulation Suite for Evacuation (M.S.) |
| Ian Schworer | 2005 | Navigation and Control of an Autonomous Vehicle (M.S.) |
| William Greff | 2005 | Collision Avoidance, Lane Keeping, & Cruise (M.S.) |
| Sadeq AlNasur | 2006 | Evacuation Dynamics (Ph.D.) |
| Mathew Simone | 2006 | Mobile Robotic System Design (M.S.) |
| Sabiha Wadoo | 2007 | Feedback Distributed Evacuation (Ph.D.) |
| Zahra Pakdel | 2007 | Online Sensor Health Monitoring (M.S.) |

| | | |
|-------------------|------|---|
| Patricia Mellodge | 2007 | Mobile Robotic Control (Ph.D.) |
| Jeremy Fried | 2007 | Numerical Simulation of Viscous Flow: A Comparison of Molecular Dynamics and Computational Fluid Dynamics (M.S.) |
| Apoorva Shende | 2008 | Optimization based nonlinear feedback control for pedestrian evacuation from a network of corridors (Ph.D.) |
| Rohit Reddy | 2009 | Studying the Impacts of Primary Incidents on Freeways to Identify Secondary Incidents (M.S.) |
| Lillian Ratliff | 2010 | Conservation based Uncertainty Propagation in Dynamic Systems (M.S.) |
| Ricky Castles | 2010 | A Knowledge Map-Centric Feedback-Based Approach to Information Modeling and Academic Assessment (Ph.D.) |
| Puneet Lakhanpal | 2011 | Traffic safety: Modeling, analysis and visualization (M.S.) |
| Sourabh Sriom | 2011 | Development of a simulation tool for analysis of freeway crashes due to cell phone usage (M.S.) |
| Neveen Shlayan | 2011 | Cyber physical complex networks, modeling, analysis, and control (Ph.D.) |
| Neveen Shlayan | 2012 | Neutron Emission Computed Tomography (M.S.,Math) |
| Shaurya Agarwal | 2012 | Wavelets in Intelligent Transportation Systems: Data Compression and Incident Management (M.S.) |
| Pratik Verma | 2012 | An End To End V.M.T Framework With Controlled V.M.T Tax Rate Using Optimal Feedback Control Technique (M.S.) |
| Pratik Verma | 2013 | V.M.T. Stochastic ODE Models and Analysis for VMT (M.S.,Math) |
| Sergio Contreras | 2013 | Traffic Modeling in Lagrangian Coordinates Using Smartphone Apps (M.S.) |
| Anuj Nayyar | 2013 | Performance Measures for Transportation Network: A Study in Travel Time Dynamics (M.S.) |
| Anuj Nayyar | 2013 | Mathematical Analysis of the Travel Time Dynamics (M.S.,Math) |
| Atul Sancheti | 2013 | Study of Seat-belt Usage & Driver's Performance (M.S.) |
| Atul Sancheti | 2014 | Lattice Methods For The Valuation of Options with Regime Switching (M.S.,Math) |
| Puneet Lakhanpal | 2014 | Numerical Simulations of Traffic Flow Models (M.S.,Math) |
| Romesh Khaddar | 2014 | Modeling and Development of Human Interface for Pedestrian Simulator (M.S.) |
| Romesh Khaddar | 2014 | Modeling and Analysis of Pedestrian Flows (M.S.,Math) |
| Vishal Jha | 2015 | Study of Machine Learning Methods in Intelligent Transportation Systems (M.S.) |
| Shaurya Agarwal | 2015 | Inverse Problem for Non-viscous Mean Field Control: Example From Traffic (M.S.,Math) |
| Pankaj Maheshwari | 2015 | Development of a Decision Support Framework for the Planning of Sustainable Transportation Systems (Ph.D., Civil Eng.) |
| Shaurya Agarwal | 2015 | Robust Observability, Control, & Economics of Complex Cyber-Physical Networks (Ph.D.) |
| Saumya Gupta | 2016 | Complex Traffic Network Modeling & Area-wide Hierarchical Control (M.S.) |
| Justin Le | 2018 | Fundamental Tradeoffs in Estimation of Finite-state Hidden Markov Models (M.S.) |
| Jadin Tredup | 2019 | The Affective Perceptual Model: Enhancing Communication Quality for Persons with PIMD (M.S.) |

CURRENT GRADUATE STUDENTS

| | |
|-----------------------|---|
| Ph.D. Students | Topic |
| Sergio Contreras | Mathematical Theory of Travel Time Dynamics and Control |
| M.S. Students | Topic |
| Michael Chang | Trajectory Analysis for Safety Metrics |

GRANTS (AS P.I. OR CO-P.I. (TOTAL AMOUNTS))

| <i>Title</i> | <i>Sponsor</i> | <i>Period</i> | <i>Total</i> |
|---|---------------------|---------------|--------------|
| CE-EM Brakes | FHWA | 1995 - 1997 | \$17,332 |
| Scaled Car | FHWA | 1997 - 1997 | \$30,000 |
| RCE-Automated Incident Management | FHWA | 1996 - 1998 | \$286,195 |
| RCE-Heuristic Network Generator | FHWA | 1996 - 1997 | \$118,049 |
| RCE-ELECTRO-MAG | FHWA | 1995 - 1997 | \$10,041 |
| RCE-TOOLS | FHWA | 1995 - 1997 | \$76,129 |
| RCE-INCIDENT-RESPONSE | FHWA | 1996 - 1997 | \$32,829 |
| RCE-FREEWAY TRAFFIC CONTROL | FHWA | 1996 - 1997 | \$14,615 |
| RCE-ONLINE TRAFFIC SIGNAL | FHWA | 1996 - 1997 | \$31,080 |
| RCE-Vehicle Dynamics & Control | FHWA | 1997 - 1998 | \$33,376 |
| RCE-Traffic Management | FHWA | 1997 - 1998 | \$69,219 |
| Vehicle Location Determination | Orbital Sci. | 1997 - 1998 | \$25,000 |
| RCE- Dynamic Network Optimization | FHWA | 1996 - 1998 | \$176,808 |
| UML for Energy Information System-I | A.E.P. | 1999 - 2000 | \$31,557 |
| UML for Energy Information System-II | A.E.P. | 2000 - 2001 | \$24,101 |
| Information Systems for General Aviation | O.D.U. | 1999 - 2000 | \$21,000 |
| Interactive A.I. Emotional Learning | Imp. Comm. | 1999 - 2000 | \$11,105 |
| Real Time Feedback Ramp Control | Rutgers Univ | 2000 - 2002 | \$20,000 |
| Self Organization in Multi-agent Systems | O.N.R. | 1998 - 2002 | \$356,040 |
| ITS based Weather Information System | O.D.U. | 2000 - 2002 | \$23,850 |
| Dynamic E.Q. Learning System | Imp. Comm. | 2001- 2002 | \$10,000 |
| Distributed Asynchronous Real-Time Sys (NAVCIITI) | O.N.R. | 2001 - 2002 | \$131,481 |
| Transportation Scale Model Exhibit | S.M.V | 2000 - 2003 | \$390,000 |
| Feedback Control Evacuation | N.S.F. | 2004 - 2006 | \$200,009 |
| Mechatronics module undergrad edu. | S.E.C. | 2005-2006 | \$7,000 |
| Robust Feedback Control | NASA | 2006 - 2009 | \$1,175,721 |
| Apoptosis Modeling and Simulation | ICTAS | 2007 - 2008 | \$50,000 |
| ITS Infrastructure Award | UNLV | 2008 - 2009 | \$80,282 |
| Conservation Methods applied to Uncertainty Propagation | Virginia Tech | 2008 - 2010 | \$68,848 |
| Traffic Management Analysis | DRI | 2008 - 2009 | \$51,468 |
| University Transportation Center | RITA-USDOT | 2008 - 2009 | \$714,313 |
| University Transportation Center | RTC-match | 2008 - 2009 | \$170,000 |
| GRFP Graduate Fellowship(Lillian Ratliff) | NSF | 2009 - 2010 | \$40,500 |
| Marketing for VMT | NDOT | 2009-2010 | \$30,000 |
| I-15 Design Build Analysis | NDOT | 2009-2010 | \$60,000 |
| University Transportation Center | RITA-USDOT | 2009-2010 | \$460,000 |
| University Transportation Center | NDOT-match | 2009-2010 | \$500,000 |
| Seat-belt Usage Survey | Nevada OTS | 2009-2010 | \$72,442 |
| Traffic Incident Management | NDOT | 2009-2010 | \$99,128 |
| Traffic Management, Analysis, and Design | UTC | 2009-2010 | \$80,000 |
| Freeway Flow Detector Validation | RTC-Southern Nevada | 2010 | \$12,717 |
| Daytime Seat-belt Surveys | Nevada OTS | 2010-2011 | \$46,652 |
| Nighttime Seat-belt Surveys | Nevada OTS | 2010-2011 | \$50,000 |
| UMC and NDOT Crash Data Integration | Nevada OTS | 2010-2011 | \$40,000 |
| Child Seat Surveys | Nevada OTS | 2010-2011 | \$39,000 |
| University Transportation Center | RITA-USDOT | 2010-2011 | \$463,400 |
| Calibration of CORSIM Model under Saturated Traffic Flow Conditions | NDOT | 2010-2012 | \$115,136 |
| Application Specific Scenario Evaluation Using Driving Simulator | NDOT | 2010-2012 | \$122,640 |
| Interstate 15 South Design Build Comprehensive Evaluations Study Based on Quantitative and Qualitative Analysis | NDOT | 2010-2012 | \$161,516 |
| Arterial Performance Measurement | PBS&J | 2011 | \$27,000 |
| Daytime Seatbelt Usage Surveys | NDOT-OTS | 2011-2012 | \$77,293 |
| Nighttime Seat Belt Usage Surveys | NDOT-OTS | 2011-2012 | \$45,000 |

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|--|------------------------|-------------------|----------------------|
| Evaluation of Child Safety Seat Usage and Related Programs in Nevada | NDOT-OTS | 2011-2012 | \$32,000 |
| User Interface and Data Processing Project for NDOT Neutron Tomography | NDOT NSTec | 2011-2012 2012 | \$62,953 \$59,492 |
| Field Test of VMT Study - Phase III | NDOT | 2012 | \$392,000 |
| Plug-In Hybrid Electric Vehicles for Energy Management | NSF-Clemson University | 2010-2013 | \$69,135 |
| Development of Remote Erasures of Information Stored On Mobile Phones | Jayn International | 2011-2013 | \$30,000 |
| Daytime Seatbelt Usage Surveys | NDOT-OTS | 2012-2013 | \$70,384 |
| Integration and Analysis of Traffic and Trauma Data | NDOT-OTS | 2012-2013 | \$42,297 |
| Daytime Seat Belt Usage Surveys | Nevada OTS | 2013-2014 | \$69,000 |
| Nevada Traffic Analysis-Driver's Edge | Nevada OTS | 2013-2014 | \$35,000 |
| Field Test of VMT Study - Phase III | NDOT/UNR | 2013-2014 | \$92,000 |
| Field Test of VMT Study Phase IV | NDOT | 2013-2014 | \$1,590,000 |
| Estimating the Rate of Private Vehicle Non-Registration | 3M | 2013-2014 | \$12,000 |
| Observational Seat Belt Survey | Nevada OTS | 2014-2015 | \$89,770 |
| Driver's Edge Assessment | Nevada OTS | 2014-2015 | \$37,944 |
| Observational Seat Belt Survey | Nevada OTS | 2015-2016 | \$90,000 |
| Observational Seat Belt Survey | Nevada OTS | 2016-2017 | \$62,000 |
| Governor's Office of Economic Development | Nevada | 2016-2017 | \$517,000 |
| Icorps Sites: UNLV Lean Entrepreneurship Advancement Program | NSF | 2016-2018 | \$255,680 |
| Icorps Sites UNLV Lean Entrepreneurship Advancement Program | NSF | 2016-2017 | \$67,200 |
| Icorps Sites UNLV Lean Entrepreneurship Advancement Program | NSF | 2017-2018 | \$94,240 |
| Observational Seat Belt Survey | Nevada OTS | 2017-2018 | \$89,968 |
| Observational Seat Belt Survey | Nevada OTS | 2018-2019 | \$93,138 |
| Faculty Opportunity Award: | UNLV | 2018-2019 | \$16,056 |
| Observational Seat Belt Survey | Nevada OTS | 2019-2020 | \$67,870 |
| Observational Seat Belt Survey | Nevada OTS | 2020-2021 | \$90,000 |
| Attitude Survey | Nevada OTS | 2020-2021 | \$27,000 |

INDEPENDENT STUDY COURSES TAUGHT

| <i>Student Name</i> | <i>Degree</i> | <i>Semester</i> | <i>Title</i> |
|---------------------|---------------|-----------------|--|
| Aditya Gadre | M.S. | Spr00 | Dynamic Programming Methodology |
| Houssam M. Dib | M.S. | Spr00 | Dynamic Programming Methodology |
| Robert D. Wallace | B.S. | Smr00 | Distributed Robotics |
| Jae Shin | B.S. | Fall01 | Magnetic Sensor System for Robotics |
| Joseph Trout | B.S. | Fall01 | Mobile Robots |
| Jae Shin | B.S. | Spr02 | Mechatronic Battery System for Robots |
| William H. Luebke | B.S. | Spr02 | Support Vector Machines and Neural Networks |
| Sanchita Gupta | B.S. | Fall02 | Adaptive Least Sq. Est. for Image Processing |
| Cass Dalton | B.S. | Fall02 | Fuzzy Topology with Engineering Applications |
| Steven Schur | B.S. | Spr05 | C# Software for Feedback Web Marketing |
| Greg Dean | B.S. | Spr, Fall05 | Evacuation Software Suite Development |
| Ryan Wilson | B.S. | Spr05 | Evacuation Software Suite Development |
| Pooya Ejtemaei | B.S. | Fall05 | Walking Robot Design |
| Teodora Erbes | Ph.D. | Sp07 | Robotic Design |
| Rebecca Shelton | M.S. | Spr07 | Nonlinear Control |
| Omar Abu Affeh | M.S. | Spr09 | Digital Signal Processing |
| Lillian Ratliff | M.S. | Spr09 | Nonlinear Systems |
| Neveen Shlayan | M.S. | Smr09 | Hybrid and Discrete Systems |
| Vishal Jha | M.S. | Smr11 | Information Theory |
| Himanshu Verma | M.S. | Smr11 | Information Theory |

PROFESSIONAL AFFILIATIONS

- IEEE (Senior Member)
- Sigma Xi

SERVICE

- Associate Editor, IEEE Transactions on Intelligent Transportation Systems, since 2015.
- Associate Editor, Journal of Computer Science and Software Application, since 2015
- Guest Editor, International Journal of Computer Applications in Technology, Special Issue: “Multi-disciplinary Problems, Models, and Feedback Control Designs,” 2007
- Faculty Advisor, Sigma Beta Rho, 2005
- IEEE Student Branch Counselor, 2001, 2002

Chair/committee of conference sessions

- Chair, Intelligent Transportation Systems session, SPIE conference 1998
- Chair, Automatic Traffic and Vehicle Control Systems, SPIE conference 1997
- Chair, Mobile Robots session SPIE conference 1996
- Committee Mobile Robots session SPIE conference 1995
- Committee Chair, Systems conference, UNLV, 2008

Reviewer for Journals (Some Examples)

- IEEE Transactions on Intelligent Transportation Systems
- IEEE Transactions on Automatic Control
- IEEE Transactions on Vehicular Technology
- IEEE Transactions on Engineering Management
- IEEE Transactions on Systems
- Journal of Business Research
- Journal of Marketing Analytics
- Natural Hazards

REFERENCES (ADDITIONAL AVAILABLE UPON REQUEST)

Dr. Kaan Ozbay

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and Center for Urban Science and Progress (CUSP),
New York University,
632 Bowser Road, Piscataway, NJ 08854-8014
Phone: (609) 216-0584, Email: kaan.ozbay@nyu.edu

Dr. Anjala Krishen

Assoc. Professor, Dept. of Marketing, UNLV
Department of Marketing & International Business, NV 89154
Phone: (540) 588-3961, Email: anjala.krishen@unlv.edu

Dr. Shaurya Agarwal

Asst. Professor, Department of Civil, Environmental and Construction Engineering,
University of Central Florida,
Phone: (702) 682-4378, Email: iitg.shaurya@gmail.com

Dr. Vinod Lohani

Professor, Dept. of Engineering Education, Virginia Tech.
332-A Randolph Hall, Blacksburg, VA 24061
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Dr. Benedetto Piccoli

Joseph and Loretta Lopez Chair Professor of Mathematics,
Department of Mathematical Sciences
and Center for Computational and Integrative Biology
Rutgers University - Camden
Phone: 856-225-6356, Email: b.piccoli@gmail.com

Dr. Masayoshi Tomizuka

Cheryl and John Neerhout, Jr. Distinguished Professor,
Professor of Mechanical Engineering
5100B Etcheverry Hall, Mailstop 1740
University of California, Berkeley
Berkeley, CA 94720-1740
Phone: (510) 642-0870, Email: tomizuka@me.berkeley.edu

Dr. Mahendra Singh

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304 Norris Hal, Blacksburg, VA 24061
Phone: (540) 231-4572, Email: mpsingh@vt.edu

Dr. Mehdi Ahmadian

Professor, Mechanical Engineering, Virginia Tech.
123 Randolph Hall, Blacksburg, VA 24061
Phone: (540) 231-4920, Email: ahmadian@vt.edu

Dr. Sabiha Wadoo

Asst. Professor, Department of Electrical Engineering, NYIT,
Email: sawadoo@gmail.com