

RICHARD C. LARSON: brief bio

Updated March 9, 2016

Dr. Larson received his Ph.D. from MIT where he is Mitsui Professor in MIT's Institute for Data, Systems, and Society (IDSS). He is founding director of the Center for Engineering System Fundamentals <http://cesf.mit.edu>, founding director of MIT LINC <http://linc.mit.edu> and Principal Investigator of MIT BLOSSOMS <http://blossoms.mit.edu>. The majority of his career has focused on operations research as applied to services industries. He is author, co-author or editor of six books and over 100 scientific articles, primarily in the fields of urban service systems (esp. emergency response systems), queueing, logistics, disaster management, disease dynamics, dynamic pricing of critical infrastructures, education and workforce planning. His first book, *Urban Police Patrol Analysis* (MIT Press, 1972) was awarded the Lanchester Prize of the Operations Research Society of America (ORSA). He is co-author, with Amedeo Odoni, of *Urban Operations Research*, Prentice Hall, 1981 (republished in 2007). He served as President of ORSA, (1993-4), and INFORMS (2005), Institute for Operations Research and the Management Sciences. He has served as consultant to the World Bank, United Nations, Rand Corp., Kuwait Foundation for the Advancement of Science, Hibernia College in Ireland, Hong Kong University, the U.S. Department of Justice, American Airlines and various other corporations. With Structured Decisions Corporation (and its precedent companies – Q.E.D., ENFORTH and Public Systems Evaluation), Dr. Larson has undertaken major projects with the U.S. Postal Service, Citibank, American Airlines, the City of New York, Jenny Craig, Conagra, Diebold, BOC and other firms and organizations. Dr. Larson's research on queues has not only resulted in new computational techniques (e.g., the Queue Inference Engine and the Hypercube Queueing Model), but has also been covered extensively in national and international media (e.g., ABC TV's *20/20*, NPR, CNN.com, the *Wall Street Journal* and the *New York Times*). Dr. Larson served as Co-Director of the MIT Operations Research Center (over 15 years in that post). He is a member of the National Academy of Engineering and is an INFORMS Founding Fellow. He has been honored with the INFORMS President's Award and the Kimball Medal. Recognizing his research on pandemic influenza and health care systems analysis, he recently served on the Board on Health Sciences Policy of the Institute of Medicine (IOM).

From 1995 to mid 2003, Dr. Larson served as Director of MIT's CAES, Center for Advanced Educational Services. Dr. Larson's position at CAES focused on bringing technology-enabled learning to students living and working far from the university, perhaps on different continents. He built the center from two to seven business units, encompassing MIT's production and R&D capabilities in educational technologies and its two major lifelong learning academic programs. He has been invited to give lectures on the future of technology-enabled education in testimony before the House Committee on Science (Washington, D.C.) and in North and South America, Asia, Africa and Europe. He served as Principal Investigator of several of MIT's most ambitious technology-enabled learning programs, including PIVoT -- the web-based the **Physics Interactive Video Tutor**, a project that led to Prof. Walter Lewin's prize-winning physics lectures being posted on the web. He was founder, with Glenn Strehle, of *MIT World*. <http://mitworld.mit.edu>. He is founding Director of LINC, Learning International Networks Consortium, an MIT-based international project that has held six international symposia and sponsored a number of initiatives in Africa, China and the Middle East. He started LINC's newest and largest initiative, BLOSSOMS, *Blended Learning Open Source Science or Math* -- sponsored by the Hewlett Foundation with additional support from the Sloan Foundation, the Lord Foundation, the Lounsbury Foundation, IBM, Fujitsu, Saudi Aramco and the Verakin Group. His recent foreign trips have been to China, Japan, Ireland, Malaysia, Pakistan, Jordan, Lebanon, Kuwait, Iran, Qatar, Saudi Arabia, Turkey and the UAE.

Richard C. Larson

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TITLE: Mitsui Professor, Massachusetts Institute of Technology.
Institute for Data, Systems, and Society

EDUCATION: SB (1965), SM (1967), PhD (1969), Electrical Engineering from MIT

CITIZENSHIP: Citizen of the United States of America

PRINCIPAL FIELDS OF INTEREST: Advanced technology and pedagogy for distance and local learning; operations research applied to private and public service systems; transportation and logistics; psychology of queueing; queueing theory, disease dynamics.

AWARDS AND HONORS:

- 1972 Lanchester Prize of the Operations Research Society of America (ORSA) for *Urban Police Patrol Analysis*.
- Twice selected as US national contributor to meetings of IFORS (International Federation of Operational Research Societies).
- *Who's Who in America* (1982).
- American Men and Women in Science, 1994.
- "1991 Distinguished Lecturer," Decision Sciences Department, Wharton School of the University of Pennsylvania.
- 1991 Cecil T. Holmes Mathematics Lecturer, Bowdoin College.
- Elected to National Academy of Engineering (1993).
- Philip M. Morse Lectureship, Institute for Operations Research and the Management Sciences (INFORMS), 1997-9.
- Omega Rho Lectureship, 1999. Honorary Member, Omega Rho.
- Invited testimony before the U.S. Congress, House Committee on Science, 2000.
- Sir Edward Youde Memorial Fund Visiting Professor, University of Hong Kong, 2002.
- Invited contributor to 50th Anniversary issue of *Operations Research*, 2002.
- INFORMS Fellow (2002).
- Kimball Medal of INFORMS (2002).
- INFORMS Presidents Award (2003)
- Harold Larnder Prize in Operations Research, Canada (2004)
- Mitsui Professorship, MIT (2004 -)
- Franz Edelman Laureate, May 2006
- IBM Research Awards, Sept. 2006, 2010, 2014, 2015
- Invited member, Institute of Medicine, Board on Health Sciences Policy. 2008-2010.
- Invited member, Institute of Medicine, Standing Committee on Emergency Management and Medical Response Integration. 2009 - 2015.
- Best paper-of-the-year award (with Anna Teytelman), *Value in Health*, 2012.
- Best paper-of-the-year award (with Yi Xue), *Monthly Labor Review*, 2015.

OF SPECIAL INTEREST: Founder and President of Public Systems Evaluation, Inc., a non-profit technical services corporation (1974-1985). Co-founder and Chairman of

ENFORTH Corporation (1980-1990). Chairman of Queues Enforth Development, Inc. (1990-2000). Chairman, Structured Decisions Corporation (2000-present). Co-founder and co-director, Forum for the Internet and the University.

ACADEMIC APPOINTMENTS: Assistant Professor, Electrical Engineering (7/1/69 – 6/30/71). Assistant Professor, Urban Studies & Planning and Electrical Engineering (7/1/71 – 6/30/72). Assoc. Professor, Urban Studies & Planning and Elec. Engineering & Computer Sci. (7/1/72 – 6/30/79). Professor, Elec. Eng. and Urban Studies & Planning (7/1/79 – 6/30/88). Professor, Elec. Eng., (7/1/88 – 6/30/03). Professor in Department of Civil and Environmental Engineering and in the Engineering Systems Division (7/1/03 – 8/31/09). Professor in the Engineering Systems Division (9/1/09 – 6/30/15). Professor in Institute for Data, Systems, and Society (IDSS) (7/1/15 – present). Mitsui Professorship awarded in 2004. Visiting Assoc. Professor of Operations Research, Depart. Industrial Engineering & Operations Research, University of Cal. at Berkeley (2/1/76 – 12/15/76). Visiting Professor of Operations Research, Technical University of Denmark, Lyngby, Denmark (1/1/81 – 6/30/81). Co-director, Operations Research Center, MIT (7/1/77 – 9/1/86, 9/1/91 – 8/31/95). Director, Center for Advanced Educational Services (9/1/95 – 6/30/03). Founder and Director, MIT LINC, 2001 – 2015. Founding Director, Center for Engineering Systems Fundamentals, 2005 – present.

Papers in Refereed Journals

- 2016 Larson, Richard C., M. Elizabeth Murray, “STEM Education: Inferring Promising Systems Changes from Experiences with MIT BLOSSOMS,” to appear, *Systems Research and Behavioral Science*.
- 2016 Larson, Richard C., “Cross-Sectional Surveys: Inferring Total Eventual Time in Current State Using Only Elapsed Time-to-Date,” under review, *Socio-Economic Planning Sciences*.
- 2016 Andalib, Maryam, Navid Ghaffarzadegan, Richard Larson, “The Postdoc Queue: Waiting and Reneging Behaviors of PhDs,” under review, *Research Policy*.
- 2015 Xue, Yi, Richard C. Larson, “STEM crisis or STEM surplus? Yes and yes,” *Monthly Labor Review*, U.S. Bureau of Labor Statistics, May 2015. Given Best-Paper-of-the-Year Award from the Lawrence M. Klein Fund. Available online <http://www.bls.gov/opub/mlr/2015/article/stem-crisis-or-stem-surplus-yes-and-yes.htm> (cited in numerous places including Amicus brief for the Fisher vs. University of Texas Supreme Court case)

¹ <http://www.scotusblog.com/wp-content/uploads/2015/11/Dupont-Amicus-Brief-FINAL.pdf>

- 2015 Finkelstein, Stan N., Richard C. Larson, Karima Nigmatulina, Anna Teytelman, "Engineering Effective Responses to Influenza Outbreaks," *Service Science*, May 2015. 7(2): 119-131. <http://dx.doi.org/10.1287/serv.2015.0099> (presented February 13 at the AAAS 2015 Annual Meeting in San Jose, CA)
- 2015 Ghaffarzadegan, Navid, Richard C. Larson, "Posttraumatic Stress Disorder: Five Vicious Cycles That Inhibit Effective Treatment," *The United States Army Medical Department Journal*, Oct.-Dec. 2015. Available online <http://1.usa.gov/1mrJDvk>
- 2014 Ghaffarzadegan, Navid , Joshua Hawley, Richard Larson and Yi Xue. "A Note on PhD Population Growth in Biomedical Sciences," *Systems Research and Behavioral Science*, John Wiley & Sons Ltd., Open Access, 2014.
- 2014 Shaw, Cole, Richard Larson, Soheil Sibdari. "An Asynchronous, Personalized Learning Platform — Guided Learning Pathways (GLP)," *Creative Education*, 2014, 5, 1189-1204. Published Online July 2014 in SciRes. <http://www.scirp.org/journal/ce> Licensed under the Creative Commons Attribution International License (CC BY).
- 2014 Hird, Mackenzie, Richard Larson, Yuko Okubo, Kanji Uchino. "Lesson Study and Lesson Sharing: An Appealing Marriage," ; *Creative Education*, 2014, 5, 769-779. Published Online June 2014 in SciRes. <http://www.scirp.org/journal/ce> Licensed under the Creative Commons Attribution International License (CC BY).
- 2013 Teytelman, A. and R. C. Larson "Multi-regional dynamic vaccine allocation during an influenza epidemic," *Service Science* (2013) ISSN 2164-3970 (online).
- 2013 Leow, Woei Ling, Richard C. Larson, James Kirtley. "Occupancy-Moderated Zonal Space-Conditioning Under A Demand-Driven Electricity Price," *Energy and Buildings* 60 (2013) 453-463.
- 2013 Larson, Richard C., Navid Ghaffarzadegan, Yi Xue, "Too Many Ph.D. Graduates or Too Few Academic Job Openings: The Basic Reproductive Number R_0 in Academia," *Systems Research and Behavioral Science* (2013) published online DOI: 10.1002/sres.2210.
- 2012 "Magnified Effects of Changes in NIH Research Funding Levels," R. C. Larson, Navid Ghaffarzadegan, Mauricio Gomez Diaz, *Service Science*, V. 4, No. 4, December 2012, pp. 382-395.

- 2012 Larson, Richard C. and Mauricio Gomez Diaz, "Nonfixed Retirement Age for University Professors: Modeling Its Effects on New Faculty Hires," *Service Science*, V. 4, No. 1, March 2012, p. 69-78.
- 2012 Teytelman, A. and R. C. Larson "Modeling Influenza Progression Within a Continuous-Attribute Heterogeneous Population," *European Journal of Operational Research*, 220 (2012) 238-250.
- 2012 Larson, R. C., and A. Teytelman, "Modeling the Effects of H1N1 Influenza Vaccine Distribution in the U.S.," *Value in Health*, 15 (2012), pp. 158-166. Best-Paper-of-the-Year Award, *Value in Health*.
- 2011 Finkelstein, S. N., K. J. Hedberg, J. A. Hopkins, S. Hashmi and R. C. Larson, "Vaccine availability in the United States during the 2009 H1N1 outbreak," *American Journal of Disaster Medicine*, 6 (1), pp. 23-30.
- 2010 Larson, R. C. and Katsunobu Sasanuma, "Urban Vehicle Congestion Pricing: A Review," *Journal of Industrial and Systems Engineering*, 3 (4), pp. 227-242.
- 2010 Larson, R. C. and Katsunobu Sasanuma, "Congestion Pricing: A Parking Queue Model," *Journal of Industrial and Systems Engineering*, 4 (1), pp. 1-17.
- 2010 Larson, Richard C., Karima R. Nigmatulina, "Engineering Responses to Pandemics," *Information-Knowledge-Systems Management*, Vol. 8, Nos. 2-4, 2009.
- 2009 Finkelstein, Stan, Shiva Prakash, Karima Nigmatulina and Richard C. Larson. "A Home Flu 'Kit' to Empower Individuals and Families for Pandemic Flu," *Disaster Medicine and Public Health Preparedness*, V. 5, No. 4, 2011. pp. 266-271.
- 2009 Chiu, Samuel, Richard C. Larson. "Bertrand's Paradox Revisited: More Lessons about that Ambiguous Word, *Random*," *Journal of Industrial and Systems Engineering*, 3(1), pp. 1-26.
- 2009 Finkelstein, Stan, Shiva Prakash, Karima Nigmatulina, Tamar Klaiman, Richard C. Larson, "PANDEMIC INFLUENZA: NON-PHARMACEUTICAL INTERVENTIONS AND BEHAVIORAL CHANGES THAT MAY SAVE LIVES." *International Journal of Health Management and Information (IJHMI)*, 1 (1), pp. 1-18.
- 2009 Livengood, Daniel, Richard C. Larson. "The Energy Box: Locally Automated Optimal Control of Residential Electricity Usage," *Service Science* 1(1), pp.1-16. http://www.sersci.com/ServiceScience/paper_details.php?id=13

- 2008 Larson, R. C., "Service Science: At the Intersection of Management, Social, & Engineering Sciences," *IBM Systems Journal*, Vol. 47, No. 1, pp. 41-52.
- 2008 Eshghi, K., R. C. Larson, "Disasters: lessons from the past 105 years," *Disaster Prevention and Management*, Vol. 17, No. 1, pp. 62-82.
- 2008 Larson, R. C. and M. E. Murray, "Open Educational Resources for Blended Learning in High Schools: Overcoming Impediments in Developing Countries," *Journal of Asynchronous Learning Networks*, V. 12, No. 1, Feb. 2008
- 2008 Nigmatulina, Karima R. and R. C. Larson, "Living with Influenza: Impacts of Government Imposed and Voluntarily Selected Interventions," *European Journal of Operational Research*. V.195, #2, June 2009, 613 - 627 (print). Published on line 21 February 2008.
- 2008 Larson, R. C. and M. E. Murray, "Distance Learning as a Tool for Poverty Reduction and Economic Development: A Focus on China and Mexico," *Journal of Science Education and Technology*, Vol. 17, No. 2, April 2008, 175 – 196.
- 2007 Larson, R. C. "Simple Models of Influenza Progression within a Heterogeneous Population," *Operations Research*, Vol. 55, No. 3, pp. 399-412, 2007.
- 2007 Black, J. and Larson, R. C. "Strategies to Overcome Network Congestion in Infrastructure Systems," *Journal of Industrial and Systems Engineering*, Vol. 1, No. 2, pp. 2 - 19, 2007.
- 2006 Larson, R. C. and M. D. Metzger, M. F. Cahn, "Responding to Emergencies: Lessons Learned and the Need for Analysis," *Interfaces*, Nov.-Dec. 2006.
- 2003 Pinker E. and Larson R.C., "A Model of Contingent Labor when Demand is Uncertain", *European Journal of Operations Research*, Jan. 2003.
- 2003 Berman, Oded and Richard C. Larson, 'A Queueing Control Model for Retail Services Having Back Room Operations and Cross-Trained Workers," *Computers and Operations Research*, Nov. 2003.
- 2002 Larson, R.C., "Public Sector Operations Research: A Personal Perspective," *Operations Research* (50) 1 pp. 135-145. (invited article in 50th Anniversary Issue).

- 2001 Berman, Oded and Richard C. Larson, "Deliveries in an Inventory/Routing Problem Using Stochastic Dynamic Programming," *Transportation Science* 35 (2) pp. 192-213.
- 1997 Berman, Oded, Richard Larson, Edieal Pinker, "Scheduling Workforce and Workflow in a High Volume Factory," *Management Science*, vol. 43, no. 2, February 1997, pp. 158-172.
- 1997 Richetta, O. and Richard C. Larson 1997. "Modeling the Increased Complexity of New York City's Refuse Marine Transport System," *Transportation Science* 31, pp. 272-293.
- 1996 Penfield, Paul, Jr. and Richard C. Larson, "Education Via Advanced Technologies," *IEEE Transactions on Education*, Special Issue on the application of information technologies to engineering and science education, vol. 39, no. 3, August, 1996; pp. 436-443.
- 1995 Webb, Ian and Richard C. Larson, "Period and Phase of Customer Replenishment: A New Approach to the Strategic Inventory/Routing Problem," *European Journal of Operations Research*, vol. 85, no.1, August, 1995, pp. 132-148.
- 1995 Berman, Oded, Dimitris Bertsimas and Richard Larson, "Locating Discretionary Service Facilities, II: Maximizing Market Size, Minimizing Inconvenience," *Operations Research*, Vol.43, No.4, 1995, pp 623.
- 1995 Jones, Lee K. and Richard C. Larson, "Efficient Computation of Probabilities of Events Described by Order Statistics and Applications to Queue Inference." *ORSA Journal on Computation.*, vol. 7, no. 1, Winter 1995, pp. 89-100.
- 1994 Berman, O., and R. C. Larson, "Determining Optimal Pool Size of a Temporary Call-In Work Force." *European Journal of Operations Research*. 73 (1994) 55-6.
- 1993 Sacks, Stephen R., Richard C. Larson and Christian Schaack, "Minimizing the Cost of Dispatch Delays by Holding Patrol Cars in Reserve," *Journal of Quantitative Criminology*, 9 (2):203-224, 1993.
- 1993 Caulkins, Jonathan P., Richard C. Larson and Thomas F. Rich, "Geography's Impact on the Success of Focused Local Drug Enforcement Operations," *Socio-Economic Planning Sciences.*, 27 (1):119-130.

- 1993 Berman, O., and R. C. Larson, "Optimal Workforce Configuration Incorporating Absenteeism and Daily Workload Variability." *Socio-Economic Planning Sciences*, 27 (2):91-96.
- 1992 Berman, O., N. Fouska, and R. C. Larson, "Optimal Locations for Discretionary Service Facilities." *Transportation Science*, 26(3):201-211, 1992.
- 1992 Larson, R.C., "Queueing Theory." An invited article in the *1992 McGraw Hill Yearbook of Science and Technology*, pp. 377-379, McGraw Hill, Inc., 1992. (updated in 1999)
- 1991 Constantopoulos, P., F. Schweppe, and R. C. Larson, "ESTIA: A Real-Time Computer Control Scheme for Space Conditioning Usage Under Spot Electricity Pricing." *Computers and Operations Research*, 18(8):751-765, 1991.
- 1990 Larson, R.C., "The Queue Inference Engine: Deducing Queue Statistics From Transactional Data." *Management Science* 36(5):586-601, May 1990.
- 1989 Schaack, C., and R. C. Larson, "An N Server Cutoff Priority Queue Where Arriving Customers Request a Random Number of Servers." *Management Science* 35(5):614-634, May 1989.
- 1988 Larson, R. C., "Transporting Sludge to the 106 Mile Site: An Inventory / Routing Algorithm for Fleet Sizing and Logistics System Design." *Transportation Science* 22(3):186-198, August 1988.
- 1988 "Operations Research: The Next Decade." A CONDOR Report (Committee On the Next Decade of Operations Research), (one of numerous co-authors). *Operations Research* 36(4):619-637, July-August 1988.
- 1988 Larson, R. C., A. R. Odoni, and R. Batta, "A Single Server Priority Queueing-Location Model." *Networks* 8:87-103, 1988.
- 1987 Larson, R. C., "Perspectives on Queues: Social Justice and The Psychology of Queueing." *Operations Research* 35(6):895-905, November-December, 1987.
- 1987 Berman, O., R. C. Larson and C. Parkan, "The Stochastic Queue p-Median Problem," *Transportation Science* 21(3): 207-216, 1987.
- 1987 Larson, R. C., and T. Rich, "Travel Time Analysis of New York City Police Patrol Cars." *Interfaces* 17(2):15-20, March-April 1987.

- 1986 Schaack, C. and R. C. Larson, "An N Server Cutoff Priority Queue." *Operations Research* 34(2):257-266, March-April 1986.
- 1985 Larson, R. C., O. Berman, and S. Chiu, "Optimal Server Location on a Network Operating as an M/G/1 Queue." *Operations Research* 33(4):746-771, July-August 1985.
- 1985 Chiu, S., O. Berman, and R. C. Larson, "Locating a Mobile Server Queueing Facility on a Tree Network." *Management Science* 31(6):764-772, June 1985.
- 1985 Chiu, S. and R. C. Larson, "Locating an N Server Facility in a Stochastic Environment." *Computers and Operations Research* 17(6):509-516, 1985.
- 1985 Berman, O., and R. C. Larson, "Optimal 2-Facility Network Distracting in the Presence of Queueing." *Transportation Science* 19(3):261-277, August 1985.
- 1983 Larson, R. C., and G. Sadiq, "Facility Locations with the Manhattan Metric in the Presence of Barriers to Travel." *Operations Research* 31(4):652-669, July-August 1983.
- 1983 Larson, R. C., and L. S. Berliner, "On Evaluating Evaluations." *Policy Sciences* 16:147-163, 1983.
- 1982 Larson, R. C., "Ambulance Deployment with the Hypercube Queueing Model." *Medical Instrumentation* 16(4):199-201, July-August 1982.
- 1982 Berman, O., and R. C. Larson, "The Median Problem with Congestion." *Journal of Computers and Operations Research* 9(2):119-126, 1982.
- 1982 Larson, R. C., "Critiquing Critiques: Another Word on the Kansas City Preventive Patrol Experiment." *Evaluation Review* 6(2):285-293, April 1982.
- 1982 Larson, R. C., and M. A. McKnew, "Police Patrol-Initiated Activities within a System Queueing Model." *Management Science* 28(7): 759-774, July 1982.
- 1981 Larson, R. C., and V. O. K. Li, "Finding Minimum Rectilinear Distance Paths in the Presence of Barriers." *Networks* 11:285-304, 1981.
- 1981 Larson, R. C. and E. H. Kaplan, "Decision-Oriented Approaches to Program Evaluation." *New Directions for Program Evaluation* 10:49-68, 1981.

- 1981 Berman, O., R. C. Larson, and A. R. Odoni, "Developments in Network Location with Mobile and Congested Facilities." *European Journal of Operations Research* 6:104-110, 1981.
- 1978 Larson, R. C., "Markov Models of Signpost Sensor AVL Systems." *Transportation Science* 12(4):331-352, November 1978.
- 1978 Larson, R. C., Guest Editor: Special Section of *Management Science* on Police Deployment 24(12), August 1978.
- 1978 Tien, J., and R. C. Larson, "Police Service Aides: Paraprofessionals for Police." *Journal of Criminal Justice* 6(2):117-131, Summer 1978. Reprinted in *Police Accountability*.
- 1978 Larson, R. C., and E. Franck, "Evaluating Dispatching Consequences of Automatic Vehicle Location in Emergency Services." *Journal of Computers and Operations Research* 5:11-30, 1978.
- 1977 Larson, R. C., K. W. Colton and G. C. Larson, "Evaluating a Police-Implemented AVM System: The St. Louis Experience (Phase 1)." *IEEE Transactions on Vehicular Technology* VT-26(1), February 1977.
- 1975 Larson, R. C., "What Happened to Patrol Operations in Kansas City?" A Review of the Kansas City Preventive Patrol Experiment." *Journal of Criminal Justice* 3(4):267-297, Winter 1975. Reprinted in *Evaluation* 3(1, 2), 1976. Reprinted in *Evaluation Studies Review Annual* 3, T.D. Cook (ed). Beverly Hills, CA: Sage Publications, 1978.
- 1975 Larson, R. C., "Approximating the Performance of Urban Emergency Service Systems." *Operations Research* 23(5):845-868, September-October 1975.
- 1975 Barnett, A., D. J. Kleitman and R. C. Larson, "On Urban Homicide: A Statistical Analysis." *Journal of Criminal Justice* 3(2):85-110, Summer 1975. Abbreviated version republished in *Ekistics* 231, February 1975. Also as "Computing Lifetime Victimization Probabilities: Risk of Urban Homicide." A chapter in *Police Accountability: Performance Measures and Unionism*, Lexington Books, 1978.
- 1974 Larson, R. C., "Illustrative Police Sector Redesign in District 4 in Boston." *Urban Analysis* 2(1):51-91, 1974. Reprinted in *Police Deployment*.
- 1974 Larson, R. C., and T. McEwen, "Patrol Planning in the Rotterdam Police Department." *Journal of Criminal Justice* 2(3):235-238, Fall 1974.

- 1974 Larson, R. C., "A Hypercube Queueing Modeling for Facility Location and Redistricting in Urban Emergency Services." *Journal of Computers and Operations Research* 1(1):67-95, 1974.
- 1973 Larson, R. C., "Decision-Aiding Tools in Urban Public Safety Systems." *Sloan Management Review* 14(2):55-73, Winter 1973.
- 1972 Larson, R. C., and K. Stevenson, "On Insensitivities in Urban Redistricting and Facility Location." *Operations Research*, pp. 595-612, May-June 1972.
- 1972 Larson, R. C., "A New MIT Graduate Course: Analysis of Urban Service Systems." *Urban Analysis* 1:105-113, 1972.
- 1972 Larson, R. C., and J. Chaiken, "Methods for Allocating Urban Emergency Units: A Survey." *Management Science* 19(4):110-132, December, 1972. Also published in *Analysis of Public Systems*, 1972.
- 1971 Larson, R. C., and A. Blumstein, "Problems in Modeling and Measuring Recidivism." *Journal of Research on Crime and Delinquency* 8(2):124-132, July 1971.
- 1970 Larson, R. C., "On Quantitative Approaches to Urban Police Patrol Problems." *Journal of Research on Crime and Delinquency* 7(2):157-166, July 1970.
- 1970 Larson, R. C., "On the Modeling of Police Patrol Operations." *Proceedings of IEEE System Science and Cybernetics Group* 6(4): 276-281, October 1970.
- 1969 Larson, R. C., and A. Blumstein, "Models of a Total Criminal Justice System." *Operations Research* 17(2):199-232, March-April 1969. Republished in *Analysis of Public Systems*, 1972. Republished in *Systems Approach and the City*, M. D. Mesarovic and A. Reisman (eds). New York: American Elsevier, 1972. Republished in *The Economics of Crime and Law Enforcement*, L. R. McPheters and W. B. Stronge (eds). C. C. Thomas, Springfield, IL, 1976.

Books and Book Chapters

- 2013 Larson, R. C., A. Teytelman and S. Finkelstein, "Operations Research and Homeland Security: Overview and Case Study of Pandemic Influenza," Chapter 2 in book, *Handbook of Operations Research for Homeland Security*, J. W. Herrman (ed.), International Series in Operations Research & Management Science 183, Springer, New York 2013, pp. 25-43.

- 2010 *Service Science*, Foreword to book, *Service Systems Implementation*, H. Demirkan, J. C. Spohrer, V. Krishna, eds. Springer, New York, 2010, pp. v – x.
- 2009 Larson, R. C., and Karima R. Nigmatulina, “Engineering Responses to Pandemics,” chapter in book, “Engineering the System of Healthcare Delivery,” William Rouse, Denis Cortese, eds, IOS Press BV, Amsterdam, 2010. Also published in the journal *Information Knowledge Systems Management* 8 (1-4) 2009.
- 2007-8 Larson, R. C., “Holistic Trinity of Services Sciences: Management, Social, & Engineering Sciences,” chapter in book, “Service Science, Management, and Engineering (SSME): Education for the 21st Century.” Posted on IBM web site, <http://www.almaden.ibm.com/asr/summit/papers/mitlarson.pdf>
- 2006 Larson, R. C. *Looking Backwards, Looking Forwards; Reflections on Definitions of Operations Research by Morse and Kimball*, a chapter in *Perspectives in Operations Research: Papers in Honor of Saul Gass’ 80th Birthday*, Bruce Golden, ed., Springer.
- 2005 Larson, R. C. *Decision Models for Emergency Response Planning*, a chapter in *The McGraw-Hill Handbook of Homeland Security*, David Kamien, editor.
- 2005 Devlin, Maureen, Richard Larson and Joel Meyerson (eds.), *The Internet and the University 2004 Forum*, EDUCAUSE, Boulder, CO.
- 2004 Devlin, Maureen, Richard Larson and Joel Meyerson (eds.), *The Internet and the University 2003 Forum*, EDUCAUSE, Boulder, CO.
- 2003 Devlin, Maureen, Richard Larson and Joel Meyerson (eds.), *The Internet and the University 2002 Forum*, EDUCAUSE, Boulder, CO.
- 2002 Devlin, Maureen, Richard Larson and Joel Meyerson (eds.), *The Internet and the University 2001 Forum*, EDUCAUSE, Boulder, CO.
- 2002 Larson, Richard C., “The Future of Global Learning Networks,” preface in *The Internet and the University 2001 Forum*.
- 2002 Larson, Richard C. and Joel W. Meyerson, “We’ve Got the Steam Locomotive – Now Let’s Design the Railroad Cars!” Preface in *The Internet and the University 2000 Forum*.
- 2001 Devlin, Maureen, Richard Larson and Joel Meyerson (eds.), *The Internet and the University 2000 Forum*, EDUCAUSE, Boulder, CO.
- 2001 Larson, Richard C., QUEUE INFERENCE ENGINE, chapter in *Encyclopedia of Operations Research and Management Science*, Centennial Edition, Saul I. Gass and Carl M. Harris (eds.), Kluwer, Boston, 2001, pp.674-679.

- 2001 Larson, Richard C., HYPERCUBE QUEUEING MODEL, chapter in *Encyclopedia of Operations Research and Management Science*, Centennial Edition, Saul I. Gass and Carl M. Harris (eds.), Kluwer, Boston, 2001, pp.373-377.
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- 2009 *Education: Our Most Important Service Sector*, Invited Op-Ed, *Service Science* http://www.sersci.com/ServiceScience/paper_details.php?id=40 On-line Nov. 1, 2009.
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- 1971 Larson, R. C., "Responses of Emergency Units: The Effects of Barriers, Discrete Streets, and One-Way Streets." New York City Rand Institute, R-675-HUD, April 1971.
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CURRENT ORGANIZATION MEMBERSHIPS

National Academy of Engineering; American Association for the Advancement of Science; Institute for Operations Research and the Management Sciences (INFORMS); Eta Kappa Nu; Tau Beta Pi; Sigma XI.

EDITORIAL BOARDS

Service Science (former Editor in Chief), *Journal of Industrial and Systems Engineering* (JISE), *International Journal of Health Management and Information* (IJHMI, Co-Editor in Chief), *American Journal of Disaster Medicine*.

REFEREE FOR MAJOR PUBLICATIONS

Management Science, *European Journal of Operational Research*, *Naval Research Logistics*, *American Journal of Disaster Medicine*, *Operations Research*, *INFORMS Transactions on Education*, *Computer-Aided Civil and Infrastructure Engineering*, *Computers & Operations Research*, *IBM Systems Journal*, *Asynchronous Learning Networks (JALN)*, *Education Research and Reviews*, *The Lancet Infectious Diseases*, *Interfaces*, *Medical Decision Making*, *IIE Transactions*, *PLoS ONE*, *Value in Health*, *Journal of contingencies and crisis management*, *Journal of the Royal Society Interface*.

PROFESSIONAL SOCIETIES

INFORMS (INstitute For Operations Research and the Management Sciences)

2005	President, INFORMS
2001-2003	Chair, Philip M. Morse Lectureship Selection Committee
2000-present	Member, Public Information Committee
1997-1999	Chair, Public Information Committee
1995	Director at Large
1994	Founding director

Operations Research Society of America (ORSA)

1993-1994	President of ORSA
1989-1992	Chairman, the ORSA Prize Committee, 1991, 1992
1989-1993	Member, ORSA NSF Liaison Committee.
1988-1993	Area Editor for <i>Operations Research</i> (Services)

1988-2000	Area Editor for <i>Interfaces</i> (Services)
1987	Committee on the Future of Operations Research
1985-1988	Member ORSA Council
1984-1985	General Chairman, TIMS/ORSA Boston '85 National Meeting
1984-1987	Area Editor for <i>Operations Research</i> (Social Systems and the Public Sector)
1978-1981	Liaison Officer to <i>IEEE</i>
1977-1978	Member, ORSA Committee on the future of the <i>Journal of Operations Research</i>
1975	Chairman, Lanchester Prize Committee
1974-present	Visiting Lecturers Program in Operations Research

ACADEMIC COURSES

ESD.86 Models, Data and Inference for Socio-Technical Systems.
 Mining Data, Modeling Systems, Making Impact (Subject ESD.934)
 Logistical and Transportation Planning Methods (1.203J)
 Discrete Stochastic Processes (6.262)
 Queueing Theory with Applications (6.264)
 Circuits, Signals, and Systems (6.003)
 Operations Management in the Services Industries, a non-credit one-week summer program for managers of services.
 Probabilistic Models in Engineering (6.939)
 Applied Probability (6.041/6.431)
 Operations Research Practicum (6.972)