

Roger Z. Ríos, Ph.D.

Fulbright Visiting Scholar, Graduate Program in Operations Research & Ind. Eng., The U. of Texas at Austin
Professor, Graduate Program in Electrical Engineering, Universidad Autónoma de Nuevo León

Short Resume, Revised 13-Jul-2024

COORDINATES

Work:

U A N L
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RESEARCH INTERESTS

General: The mathematical modeling of optimization problems, application and theory of operations research techniques, and design, development, and analysis of efficient algorithms to solve such problems.

Specific research: Scheduling, heuristic and metaheuristic techniques (GRASP, tabu search, scatter search) for fast and high-quality solutions to hard optimization problems, exact optimization schemes (B&B, B&C, B&P), combinatorial optimization, and territory design.

Application areas: Machine scheduling problems in manufacturing systems, optimization of natural gas transmission systems, efficient use of natural resources and environment, optimal design of sales territories in the product distribution industry, facility location, health care management, and energy applications.

EDUCATION

Ph.D., Operations Research and Industrial Engineering, GPA 4.0, U. of Texas – Austin, 1997

M.S.E., Operations Research and Industrial Engineering, GPA 4.0, U. of Texas – Austin, 1992

Licenciado (B.Sc.) in Mathematics, Universidad Autónoma de Nuevo León (UANL), GPA: 96.0, México, 1988

ACADEMIC APPOINTMENTS

Professor, Electrical Engineering Graduate Program, UANL (2023 - present)

Lecturer, Department of Economics, UANL (2024)

Professor, Systems Engineering Graduate Program, UANL (2002 – 2023)

Assistant Professor, Systems Engineering Program, UANL (1999 – 2002)

Postdoctoral Research Associate, Dept. of Ind. Engineering, Texas A&M U. (1997 – 1999)

Assistant Instructor & Graduate Research Assistant, OR/IE Program, UT-Austin (1992 – 1997)

Teaching Assistant, FCFM, UANL (1986 – 1987)

ADMINISTRATIVE APPOINTMENTS

Academic Coordinator of Graduate Program in Systems Engineering, FIME, UANL (2011 – 2014/2012)

Systems Engineering Research Coordinator, FIME, UANL (2008 – 2011)

Systems Engineering Research Lab Administrator, FIME, UANL (2005 – 2008)

Academic Coordinator of Systems Engineering Masters Program, FIME, UANL (2002 – 2005)

Vice-President, ALIO (2002 – 2004)

VISITING APPOINTMENTS

Fulbright Visiting Scholar (sabbatical leave), OR/IE Program, U. of Texas at Austin (2024 – 2025)

Visiting Researcher, Departament d'Estadística i Investigació Operativa, U. Politècnica de Catalunya (2024)

Visiting Researcher, OR/IE Program, U. of Texas at Austin (2016)

Visiting Researcher, Departament d'Estadística i Investigació Operativa, U. Politècnica de Catalunya (2015)

Visiting Researcher, OR/IE Program, U. of Texas at Austin (2014)

Visiting Researcher, OR/IE Program, U. of Texas at Austin (2013)

Visiting Scholar, Departament d'Estadística i Investigació Operativa, U. Politècnica de Catalunya (2013)

Visiting Researcher, Center of Excellence on Sustainable Urban Freight Systems, Rensselaer Polytechnic Institute (2013)

Visiting Researcher, Center for Sustainable Energy and Analytics, Northwestern University (2013)

Fulbright Visiting Scholar (sabbatical leave), OR/IE Program, U. of Texas at Austin (2012 – 2013)
Visiting Researcher, Departament of Economics, U. de Burgos (2009)
Visiting Researcher, Departament d'Estadística i Investigació Operativa, U. Politècnica de Catalunya (2009)
Visiting Researcher, Departament d'Estadística i Investigació Operativa, U. Politècnica de Catalunya (2007)
MEC Visiting Scholar (sabbatical leave), Departament d'Estadística i Investigació Operativa, U. Politècnica de Catalunya (2005 – 2006)
Visiting Scholar, Leeds School of Business, U. of Colorado, Boulder (2004)
Visiting Researcher, High Performance Computing Center, U. of Houston (1997 – 1999)

PROFESSIONAL APPOINTMENTS

Assistant Researcher, Eicor Tecnología, San Nicolás de los Garza, México (1991)
Assistant Researcher, Vitrotec, Monterrey, México (1986 – 1990)

HONORS

SNI Fellow: Distinction granted by the Mexican System of Research Scientists (Level 1, 2000-05; Level 2, 2006-09, 2010-2014, 2015-2019; Level 3, 2020-2024), 2025-2029
AMC Fellow: Distinction granted by the Mexican Academy of Sciences (2005-)
TECNOS Award: Supervising professor of Best Master Thesis in the state of NL (2005)
PRODEP Fellow: Distinction granted by the Public Education Secretary (2005-08, 2008-11, 2011-14, 2014-17, 2017-20, 2020-23, 2023-29)
Fulbright Visiting Scholar Award: Award granted by the Fulbright Scholar Program for visiting scholars on sabbatical leave at USA institutions (2012-13 & 2024-25)
MEC Visiting Scholar Award: Award granted by the Spanish Ministry for Education and Science for visiting scholars on sabbatical leave at Spanish institutions (2005-06)
AMC-FUMEC Visiting Scholar Award: Award granted by the Mexican Academy of Sciences and Mexico-USA Science Foundation to pursue summer research as a Visiting Scholar in an American institution. Only six awards were granted nation-wide (2004)
State Science Award: Most prestigious state-wide award granted by the state of Nuevo Leon government to the best scientific contributions in the Exact Sciences Category (2023)
UANL Research Award: Most prestigious university-wide award granted by UANL to the best research work in the Exact Sciences Category (1999, 2014, 2017) and Engineering and Technology category (2009)
UANL Thesis Award: Supervising professor of Best Master Thesis at UANL (2009, 2010)
SMIO Thesis Award: Supervising professor of Best Undergraduate Thesis in Mexico (2023)
Host Researcher: CONACyT's Foreign Researcher Support Program, hosting Dr. Slava Kalashnikov from Central Economics and Mathematics Institute, Moscow, Russia (2000-01, 2001-02); CONACyT Repatriation Program, hosting Dra. Sara V. Rodríguez (2010-11)
SEP-UANL Faculty Fellow: University-wide award granted by SEP through UANL to outstanding faculty members for teaching and research (Level II, 1999-2001; Level III, 2001-02, 2002-03; Level V, 2003-04, 2004-05, 2005-07, 2007-09, 2009-10; Level VI, 2010-11, 2011-12, 2012-13, 2013-14, 2014-15, 2015-16, 2016-17, 2017-18, 2018-19; Level VII, 2019-20, 2020-21, 2021-22, 2022-23, 2023-24, 2024-25)
UANL-FIME Awards: Research merit (2009), Published work (2009, 2014), Technological innovation merit (2010), "Ingenierías" support (2011)
Evaluation Committee Member: 43 committees: UANL Research Award (2000, 2001, 2002, 2003, 2009, 2012, 2014, 2015, 2016, 2017, 2018, 2019), UANL PAICyT (2002-03, 2004-05, 2011-12, 2012-13, 2015), CONACyT Certified Reviewer (2002-05, 2005-), Fac. Católica de Quím. e Ing. Fray Rogelio Bacon, Argentina (2003), CONACyT Graduate Program Reviewer (2007, 2009), CONACyT fellowship reviewer (2008, 2013, 2013b, 2013c, 2014a, 2014b, 2014c), CONACyT-FUNED fellowship reviewer (2014a), CONACyT postdocs reviewer (2010, 2011, 2011, 2013, 2013c, 2014b, 2016a, 2017a), CONACyT final report postdoc reviewer (2021, 2022), CONACyT-I2T2 fellowship reviewer (2014, 2015), CONACyT-DADC (2016), CONACyT sabbatical reviewer (2016a, 2018a, 2019a), CONACyT-SENER fellowship reviewer (2017g, 2017h), CONACyT Sabbaticals (2018a), CONICYT-FONDECYT, Chile (2017), PISIS Academic Committee (2021-), INFORMS-ENRE Student Paper Award (2023)
Plenary speaker (international): 2 conferences: EURO (2018), CLAIO (2024, forthcoming)
Conference Chair: 1 conference: CLAIO/SMIO (2014)
Conference PC Chair: 2 conferences: CSMIO (2012), ALIO-INFORMS (2019)
Program Committee Member: 65 conferences: MAEB (2007, 2009, 2010, 2012, 2013, 2014, 2015, 2016, 2018), CLAIO (2000, 2002, 2004, 2006, 2010, 2012, 2016, 2018, 2020), ELAVIO (2004, 2007, 2008, 2009, 2012, 2014, 2015, 2016), CSMIO (2012, 2018), Mexican International Conference on AI (2002, 2004, 2005), Mexican International Conference on CS (2004, 2005, 2017), COMTEL (2009, 2010, 2011), IFORS (2017, 2020, 2023), MIC (2019, 2022, 2024), REDM (2007, 2009), IOCA (2010, 2013), JAEM (2007, 2015), PANAM (2016, 2020), 7th INFORMS Computing Society Conf. (2000), 5th WSEAS Int. Conf. on Systems Theory and Scientific Comp. (2005), SIIS (2006), ICORD (2007), TLAIO (2009), MHIPL (2009), IJIE (2010), HAROSA (2012), ICCL (2014), CIII (2016), OPTIMA (2017, 2019), ASOCIO (2019), ICPR (2019), ALIO-EURO ICACO (2021), ICORES (2024), ICCL (2024).

Study Fellowships: for PhD studies from CONACyT (1993-96), for MS studies from CONACyT (1991-92); for BS studies from UANL (1983-87)

Research Paper Awards: Best Graduate Student Paper Award at UT-Austin (2 times, 1995 & 96)

Awards as a Graduate Student at UT-Austin: University Continuing Fellowship (highest university-wide honor at UT for doctoral students, 1993-94); E. D. Farmer Fellowship (3 times, 1994-97); David Bruton Fellowship (1996-97); 3 research travel grants (2 granted by UT and 1 by the NSF); Omega Rho Int. Honor Society Inductee (since 1992); UT-Austin Chapter President of the Omega Rho Int. Honor Society (1993-97)

Honors as an Undergraduate Student at UANL: Top ranked student majoring in Mathematics (1983-87); Winner of First Place of the Nuevo León state-wide Mathematics contest for high-school students (1983)

PUBLICATIONS

Books: 14 edited volumes published by Springer (10), Kluwer (2), Hindawi (1), and UANL Press (1).

Book chapters: 7 chapters published in books from Springer (4), Kluwer (1), Oxford University Press (1), and WSEAS Press (1)

JCR journal papers: 48 papers published in: *Computers & Operations Research* (7), *European J. of Operational Research* (4), *Expert Systems with Applications* (3), *J. of Heuristics* (3), *Annals of Operations Research* (2), *Computers & Chemical Engineering* (2), *International J. of Production Economics* (2), *International Transactions in Operational Research* (2), *Omega* (2), *TOP* (2), *Applied Energy* (1), *Computational Materials Science* (1), *Computers & Industrial Engineering* (1), *Cybernetics and Systems* (1), *Forests* (1), *IEEE Latin America Transactions* (1), *IIE Transactions* (1), *Interfaces* (1), *International J. of Computational Intelligence Systems* (1), *International J. of Information Technology & Decision Making* (1), *J. of Combinatorial Optimization* (1), *J. of Industrial and Management Optimization* (1), *J. of the Operational Research Society* (1), *Mathematical and Computer Modelling* (1), *Networks & Spatial Economics* (1), *Optimization & Engineering* (1), *Public Transport* (1), *Socio-Economic Planning Sciences* (1), and *Transportation Research Part C* (1).

Scientific outreach articles: 37 papers published in: *Ingenierías* (17), *Ciencia UANL* (8), *Nova Scientia* (3), *Acta Universitaria* (2), *IFORS News* (2), *ACM Journal of Experimental Algorithmics* (1), *Computación y Sistemas* (1), *Revista Ingeniería de Sistemas* (1), *Voraz* (1), and *WSEAS Transactions on Systems* (1)

Conference proceedings: 48 papers published in conferences from NSF (7), MAEB (6), CLAIO (4), ELAVIO (4), FIME-ISE, (4), EUME (2), UT-Austin (2), IABRC (2), IJIE (2), REDM (2), CAEPIA (1), ICC&IE (1), ENC (1), ICCL (1), IEEE SMC (1), IMEDAL (1), Fundiexpo (1), JAEM (1), TLAIO (1), MHIPL (1), MICAI (1), UDLAP (1), IISE (1).

Thesis: 1 PhD thesis (UT-Austin) and 1 BSc thesis (UANL)

Technical reports: 57 reports published in UANL (50), U. of Texas (5), U. of Chicago (1), and TU-Freiberg (1)

Industrial reports: 7 reports for Vitrotec, México

Work in progress: 7 papers under review (Mine-IJWF, Vicky-PUTR, LuciaFabi-C&IE, LuciaHomero-AJT, Caro-TOCS, Uriel-EPSR, Betty-SEPS)

TALKS

Invited Talks (international): 24 -- U. of Texas - Austin (4), UPC (3), U. de M. (3), US-MEX WOA (2), ELAVIO (2), ULL (1), U. de Burgos (1), SMM-RSME Meeting (1), U. de Lleida (1), NAMIAM (1), UTSA (1), Northwestern U. (1), RPI (1), EURO (1), IFORS(1), CLEI (1). + (Forthcoming: MOG, CLAIO).

Invited Talks (domestic): 168 talks as a featured speaker at UANL (103), ITESM-Monterrey (8), ILP (7), IT-Nuevo Laredo (3), SMM Conference (5), ITAM (3), UNAM (3), U. de M. (3), AMC-Science Sunday Program (2), UPA (2), IT-Culiacán (2), U. del Norte, Monterrey (1), International Conf. on Ind. Eng., UAT-Cd. Mante (1), International Symposium on Comp. Systems, IT-Salttillo (1), ENOAN (1), IO-FIME (1), UAEM (1), ITESM-Aguascalientes (1), BUAP (1), CIMAV (1), CIMAT (1), UVM-Cumbres (1), UVM-Monterrey (1), Secu 25, GF Tamps. (1), IT-Toluca (1), AMC-UACJ (1), U. de G. (1), OCA Hospital (1), EMALCA (1), IT-Jobs (1), IT-Lagos de Moreno (1), SMIO (1), IDEAS-FIME (1), U.A. de Tlaxcala (1), CIMA, U.A. de Coahuila (1), Coloquio VNM (1), UAQ (1), Colegio "Niños Héroes", Cd Mante (1), Tecmilenio.

Paper Presentations at Conferences: 77 papers at conferences from INFORMS (10), SMIO (8), CLAIO (7), IIE (6), MAEB (5), SMM (4), CORS (3), SIAM (3), ALIO/EURO (2), ECCO (2), ICS (2), UT-Austin (2), EU/ME (2), POMS (2), BIRS-CMO (1), CITSA (1), CMS (1), EPIO (1), HM(1), ICCL (1), ICOR (1), IEEE-SMC (1), INFORMS International (1), IOS (1), ISOLDE (1), JAEM (1), NSF (1), Odysseus (1), RNMPT (1), RAI (1), SIAM-Mex (1), UANL-FIME (1), WSEAS (1).

STUDENT THESIS SUPERVISION

Supervised: 33 students (7 PhD, 22 MS, 4 BS) graduated, 5 postdocs supervised; in progress: 1 postdocs & 3 students (2 PhD, 1 MSc)

Committee Member / External Advisor: 14 students (8 PhD, 6 MS) advised: at UANL (11), Texas A&M U. (1), and U. of Houston (1), Gliesch (1); in progress: 2 students (2 PhD).

Hosted: 30 undergraduate and 8 high-school students supervised in research summer programs from National Academy of Sciences (2001-2018) and UANL (2000-2021); 1 foreign student supervised as an intern (2004)

PROJECTS

Grants as a PI: 23, from CONACYT (7), AMC-FUMEC (1), and UANL (15).

TEACHING

Undergraduate Courses Taught at UT-Austin: Engineering Economic Analysis, Introduction to Operations Research

Undergraduate Courses Taught at UANL-FIME: Introduction to Operations Research, Selected Optimization Topics

Undergraduate Courses Taught at UANL-Dept of Economics: Operations Research

Graduate Courses Taught at UANL-PISIS: Dynamic Programming, Integer Programming, Linear Programming, Metaheuristics, Network Flow Programming, Queueing Theory, Stochastic Processes, Data Structures in C++,

PROFESSIONAL SERVICE

Editorial Boards: Area Editor for *Computers & Operations Research* (2019-); Editorial Board for *Operations Research Perspectives* (2014-); Technical Advisory Board for *Ingenierías* (2005-). Former: Editorial Advisory Board for *Computers & Operations Research* (2016-2018); Associate Editor (Area Operations Research) for *Advances in Decision Sciences* (2003-2017).

Editorships: 4 edited books (Springer, 1998; Springer, 2012; UANL, 2014; Springer, 2020), and 10 edited journal volumes (Vols. 116, 117, 138, 157, 169, 199, 258, 286 of *Annals of Operations Research*, Vol 15(2) of *J. of Heuristics*, Vol. 2006 of *J. of Applied Math. and Decision Science*).

Offices Held: President, UT-Austin Section of Omega Rho International Honor Society (1993-97); ALIO Vicepresident (2002-04); IMSIO Delegate in IFORS (2004-11); SMIO Delegate in IFORS (2013-14); President, SMIO (2014-16).

Main Contribution to UANL: Co-founder of Masters Program in Systems Engineering at Facultad de Ingeniería Mecánica y Eléctrica (1999); founder of workstation computer lab (2000).

Conference Organization: 27 participations at world-wide meetings as: conference chair (CLAIO XVII/CSMIO III), PC chair (CSMIO 2012, ALIO-INFORMS 2019), conference organizer (IPCO VI, IO-FIME I, ELAVIO XIV), cluster/area chair (6), and session chair (18).

Refereeing Work: 63 papers refereed (77 reports) for *Computers & Operations Research* (10), *Annals of Operations Research* (7), *European J. of Operational Research* (6), *Ingenierías* (3), *J. of Applied Math. & Decision Sciences* (3), *IIE Transactions* (2), *INFORMS J. on Computing* (2), *J. of Heuristics* (2), *Advances in Materials Science and Engineering* (1), *Applied Energy* (1), *Asia-Pacific J. of Chemical Engineering* (1), *Discrete Applied Mathematics* (1), *Discrete Optimization* (1), *Energy* (1), *INFORMS Journal on Optimization* (1), *INFORMS Transactions on Education* (1), *Interfaces* (1), *Int. J. of Operations and Quantitative Mgmt.* (1), *Int. J. of Production Research* (1), *Int. Transactions in Operational Research* (1), *J. of Computational and Graphical Statistics* (1), *J. of Scheduling* (1), *J. of the Operational Research Society* (1), *Memetic Computing* (1), *Naval Research Logistics* (1), *Networks* (1), *Omega* (1), *Optimization and Engineering* (1), *Service Science* (1), *Socio-Economic Planning Sciences* (1), *Transportation Science* (1), *WASJ* (1), books (3), and conferences (2); 53 papers reviewed for meetings; reviewer of UANL Research Award (10 times); reviewer of UANL-PAICyT projects (4 times); 12 projects reviewed for CONACYT; 2 projects reviewed for FONDECyT (Chile); 9 graduate programs evaluated for CONACYT-PNPC; 2 applications for PRODEP Profile.

Memberships: ACM; AEPIA; EURO, EURO-ECCO, EURO-EU/ME, EURO-EGWLA, EURO-ORAFM, EURO-EGWSP, EURO-VeRoLog; INFORMS; INFORMS Computing Soc.; INFORMS Optimization Soc., INFORMS/ENRE, INFORMS/TS&L, INFORMS/LA; INFORMS Health App. Soc.; IIE; MPS; Omega Rho International Honor Society; Pipeline Simulation Interest Group; SEIO; SIAM; SIAG/OPT; SMIO.

COMPUTER SKILLS

Programming Languages: C++, C, FORTRAN, BASIC.

Operating Systems: UNIX (and compatible), MacOS, VAX/VMS, IBM/VM, MS Windows.

Optimization Software: CPLEX, OSL, GRG2, GAMS, MINTO, MATLAB.

Miscellaneous: Mailing list administration (IOMEX-L, SCHED-L, PISIS-L), System administration of IBM RS/6000 and Sun workstations, world-wide web page design and development.

PERSONAL INFORMATION

DOB: April 1966
Birthplace: Monterrey, México
Marital status: Married (with three children)
Languages: Spanish (native) and English

NOTATION

ALIO: Latin-Iberian-American Association of Operations Research
UANL: Universidad Autónoma de Nuevo León
CONACYT: Consejo Nacional de Ciencia y Tecnología (Mexican Council for Science and Technology)