José Daniel López-Barrientos

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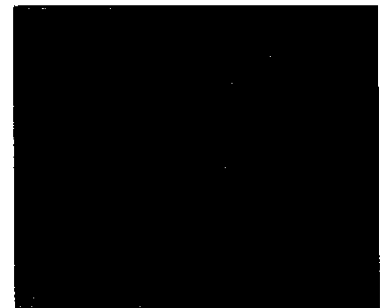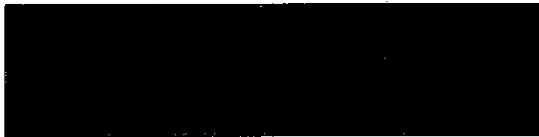
PROFILE

I am an actuarial mathematician with social interests of long range. I speak three languages: English (TOEFL 101/120), French (DALF C1) and Spanish (native competence), and I am learning a fourth one, Russian. I am skilled in the disciplines I practice, both, professionally and for fun. I love working-out and playing chess and football. According to the *Strenghts-Finder 2.0* instrument by Gallup, my dominant talents are: achiever, relation, ideation, inclusion and self-assurance. I enjoy developing myself through my research projects and I like to think of myself as a team player. I intend to live by the universal values. My life is a continuous attempt to bring these ideals to my job, my friends and those around me.

Current position

- *Researcher/Full-time teacher.* Facultad de Ciencias Actuariales de la Universidad Anáhuac México. Campus Norte

Primary areas of research interest

Basic Mathematics; Stochastic Control and Game Theory; Probability and Risk Theory.

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Work experience

2017-2018	Post-doctoral fellow at the Санкт-Петербургский государственный университет, Россия.
2015-2016	Post-doctoral fellow at the Université de Montréal.
2013-2015	Part-time teacher at the Masters and Doctoral programs at Escuela Superior de Economía (Instituto Politécnico Nacional).
2011-2014	Researcher/Full-time teacher. Universidad La Salle, México.
2010-2014	Chair of the Actuarial Sciences undergraduate program, Universidad La Salle, México.
2009-2010	Chair of the Actuarial Sciences undergraduate program, Universidad Autónoma del Estado de México-Campus Valle de México.
2007-2014	Part-time teacher, Universidad Anáhuac-México Norte.
2006-2010	Part-time teacher, Universidad Nacional Autónoma de México.
2005-2006	Part-time teacher, Universidad Autónoma del Estado de México-Campus Valle de México.
2002-2004	Software developer, Bufete Matemático Actuarial.

Education

2003	BACHELOR'S DEGREE in Actuarial Sciences, Universidad Anáhuac México. Licence number: 4046867.
2006	MASTER OF SCIENCES with speciality in Mathematics, Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional. Licence number: 6585987.
2012	DOCTOR OF PHILOSOPHY with speciality in Mathematics, Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional. Licence number: 8174908.

Grants and honors

2000-2003	Grant to the academic excellency, Universidad Anáhuac México.
2000-2003	Member of the third generation of the Academic Excellence Program *Vértice Anáhuac*, Universidad Anáhuac México.
2004-2010	Grant to the academic excellency, Consejo Nacional de Ciencia y Tecnología, México.
2013-Present	Member of the Sistema Nacional de Investigadores, Consejo Nacional de Ciencia y Tecnología, México. (Level 1 from January 1, 2018 until December 31, 2020, and from January 1, 2016 to December 31, 2017.)
2015	Postdoctoral grant from Programme de Bourses d'excellence pour étudiants étrangers – Stage de recherche Québec-Mexique.

Research Activities

PAPERS IN SPECIALIZED JOURNALS

2019	Aguirre-Farías, Francisco Miguel; Aguirre-Villarreal, Francisco Miguel; López-Barrientos, José Daniel, "Comparison of the costs of the defined-benefit and the defined-contribution schemes under an actuarial methodology". *The Mexican Journal of Economics and Finance* 14(4). Available at: https://doi.org/10.21919/remef.v14i4.383.
2017	García-Meza, Mario Alberto; Gromova, Ekaterina Viktorovna; López-Barrientos, José Daniel,

"Stable marketing cooperation in a differential game for an oligopoly". *International Game Theory Review* 20(3). Available at: https://doi.org/10.1142/S0219198917500281.

2016   Gromova, Ekaterina Viktorovna; López-Barrientos, José Daniel, "A differential game model for the extraction of non renewable resources with random initial times: the cooperative and competitive cases". *International Game Theory Review* 18, 1640004: 1-19. Available at: https://www.worldscientific.com/doi/abs/10.1142/S0219198916400041.

2015   Jasso-Fuentes, Héctor; López-Barrientos, José Daniel; Escobedo-Trujillo, Beatris Adriana. "Infinite Horizon Nonzero-Sum Stochastic Differential Games with Additive Structure". *IMA Journal of Mathematical Control and Information*. DOI: 10.1093/imamci/dnv045.

2015   Gromova, Ekaterina Viktorovna; López-Barrientos, José Daniel, "A differential game model for the extraction of non renewable resources with random initial times". Contributions to Game Theory and Management, 8, 58-63.

2015   López-Barrientos, José Daniel; Escobedo-Trujillo, Beatris Adriana; Jasso-Fuentes, Héctor. "Discounted robust control for Markov diffusion processes", *TOP.* 23 (1): 53-7.

2014   Escobedo-Trujillo, Beatris Adriana; López-Barrientos, José Daniel. "Nonzero-Sum Stochastic Differential Games with Additive Structure and Average Payoffs" *J. Dynamics and Games* 1 (4): 555-578.

2014   Jasso-Fuentes, Héctor; López-Barrientos, José Daniel. "On the use of stochastic differential games against nature to ergodic control problems with unknown parameters". *International Journal of Control.* Published online. http://dx.doi.org/10.1080/00207179.2014.984764

2014   López-Barrientos, José Daniel. "Policy Iteration for Zero-Sum Stochastic Differential Games with long-run average payoff criteria", *Journal of the Operations Research Society of China.* 2 (4): 395-421.

2012   Escobedo-Trujillo, Beatris Adriana; López-Barrientos, José Daniel; Hernández-Lerma, Onésimo "Bias and Overtaking equilibria for zero-sum stochastic differential games", *J. Optim. Theory Appl.* 153: 662–687.

BOOK CHAPTERS

2017   Escobedo-Trujillo, Beatris Adriana; Jasso-Fuentes, Héctor; López-Barrientos, José Daniel "Blackwell-Nash equilibria in zero-sum stochastic differential games". *XII Symposium on Probability and Stochastic Processes.* Birkhäuser, ISBN 978-3-319-77643-9.

2016   García-Meza, Mario Alberto; López-Barrientos, José Daniel, "A differential game of a duopoly with network externalities". *Recent Advances in Game Theory and Applications.* Birkhäuser, ISBN-13: 978-3319438375.

DIVULGATION OF SCIENCE

2018   López-Barrientos, José Daniel "¿Cooperación o Competencia? ¡Juegos diferenciales de todos modos!" *Miscelánea Matemática*, 66: 81-110. ISSN: 1665-5478.

2016   Jasso-Fuentes, Héctor; López-Barrientos, José Daniel "Juegos Diferenciales Estocásticos en horizonte infinito" *Carta Informativa de la Sociedad Matemática Mexicana* 76: 5-10.

2016   López-Barrientos, José Daniel "Una bala que mitiga el Riesgo". To appear in a book of divulgation of science by Octaedro Publishing House, in Spain.

Former Students

2016   García-Meza, Mario Alberto. PhD in Economics. Escuela Superior de Economía, Instituto Politécnico Nacional.

2016   Pérez-Abea-Camarena, Efraím. MSc in Quanitative Methods in Finance. Facultad de Ciencias Actuariales, Universidad Anáhuac México.

2015   Cortés-Suárez, Daniel. MSc in Quanitative Methods in Finance. Facultad de Ciencias Actuariales, Universidad Anáhuac México.

Work in preparation

- López-Barrientos, José Daniel; Lemus-Rodríguez, Enrique; Silva-Urrutia, José Eliud: *The tables of the (Normal) law.*

- Aguirre-Farías, Francisco Miguel; Aguirre-Villarreal, Francisco Miguel; López-Barrientos, José Daniel: *The Premia of optimal liquidity: a perspective from the optimal control theory.*

- Khlopin, Dmitrii Valerievich; López-Barrientos, José Daniel; Lemus-Rodríguez, Enrique: *A uniform Tauberian theorem in stochastic dynamic games.*

- López-Barrientos, José Daniel; Lemus-Rodríguez, Enrique: *Approximate equilibria for a class of stochastic differential games.*

- Petrosyan, Leon; Gromova, Ekaterina; López-Barrientos, José Daniel: *Teoría de Juegos.*

Submitted papers

2020   Escobedo-Trujillo, Beatris Adriana ; López-Barrientos, José Daniel; Garrido-Meléndez, Javier: "Constrained stochastic differential games with additive structure: the total expected payoff". Submitted to the *Journal of Economic Dynamics and Control* in January, 2020.

2019   Higuera-Chan, Carmen Geraldi; Escobedo-Trujillo, Beatris Adriana; López-Barrientos, José Daniel "Optimal control diffusion processes with Markovian switching modelled as a game against nature: the average criterion". Submitted to *Acta Applicandae Mathematica* in November, 2019.

2019   López-Barrientos, José Daniel; Andrade-Rosas, Luis Antonio; Vega-Blanco, Manuel Vladimir "Optimal tax policy from the point of view of an income redistribution". Submitted to the *Journal of Monetary Economics* in December, 2019.

2019   López-Barrientos, José Daniel; Gromova, Ekaterina Viktorovna; Miroshnichenko, Ekaterina Sergeevna "Resource exploitation under two parametric interpretations". Submitted to *Stochastic Analysis and Applications* in November, 2019.

Selected talks

2018   Approximate equilibria for a class of stochastic differential games. *14th Viennese Conference on Optimal Control and Dynamic Games.* Technische Universität Wien, Österreich.

2017   Blackwell-Nash equilibria in zero-sum stochastic differential games. *11th International Conference on Game Theory and Management.* Санкт-Петербургский государственный университет,
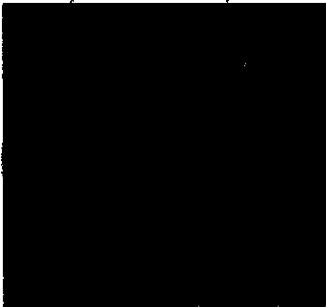
Россия.

¡Juegos diferenciales de todos modos! *XXVIII Congreso Nacional de Actuaría*. Universidad de Las Américas, Puebla.

2016 A differential game model for the extraction of non renewable resources with random initial times: the cooperative and competitive cases. *Séminaire régulière du GERAD*. Montréal, Canada.

2015 A differential Game on oil extraction. *9th International Conference on Game Theory and Management*. Санкт-Петербургский государственный университет, Россия.

2014 Nonzero-sum stochastic differential games with additive structure and average payoff. An actuarial application. *Simposio Internacional de Métodos Matemáticos Aplicados a la Ciencia*. San José, Costa Rica.

2013 Control Robusto Descontado para procesos controlados de difusión. *Seminario de Matemáticas de la Universidad Autónoma Metropolitana*, Mexico City.

2012 Juegos Diferenciales Estocásticos de Suma No-Cero con estructura aditiva y pago promedio. *Seminario de Matemáticas del Centro de Investigación en Matemáticas*. Guanajuato, Guanajuato, México.

2011 Policy Iteration Algorithm for Zero-Sum Stochastic games with Ergodic Payoffs. *Third Workshop on Dynamic Games in Management Science*. Montréal, Canada.

Services to the profession

2014-Present Referee for several journals indexed in Scopus, the Mathematical Reviews and/or Journal Citation Reports.

2016-Present Reviewer for the *Mathematical Reviews* of the American Mathematical Society.

2014-Present President of the Committee of Research and Actuarial Development, Colegio Nacional de Actuarios, México.

2016 Coordinator of the Comissions of Academic Pairs for the visits to the Actuarial Sciences Programs at: Universidad Autónoma de Yucatán and Universidad de las Américas Puebla.

2019 Invited Professor to the *Master Professionnel en Actuariat* at the Institut Interafricain de Formation en Assurance et en Gestion des Entreprises, Dakar, Sénégal.

2019-Present Editor in Chief of the Official Journal of the Colegio Nacional de Actuarios: *Actuarios Trabajando*.

2014-2016, Member of the *Comisión Técnica Consultiva* of the Actuarial Profession at the Secretaría de
2019-Present Educación Pública.