

CAMILO OLAYA

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ACADEMIC QUALIFICATIONS

- **Doctor Oeconomiae** (Dr. oec. - PhD in Economics) University of St. Gallen, Switzerland
- **M.Sc. Industrial Engineering** Universidad de los Andes, Bogotá, Colombia
- **B.Sc. Systems and Computer Science Engineering** Universidad de los Andes, Bogotá

PROFESSIONAL APPOINTMENTS

- **Associate Professor** (2010-Present) Department of Industrial Engineering, Universidad de los Andes
- **Research Associate** (2005-2006) Institute of Management (IfB), University of St. Gallen, Switzerland
- **Consultant** (2005) Continental AG, Germany
- **Assistant Professor** (2001-2003; 2007-2010) Department of Industrial Engineering, Universidad de los Andes
- **Instructor** (1998-2001) Department of Industrial Engineering, Universidad de los Andes
- **Graduate Assistant** (1998) Department of Industrial Engineering, Universidad de los Andes
- **Graduate Assistant** (1996-1998) School of Social Sciences, Universidad de los Andes
- **Systems Analyst** (1993) Banco de Bogotá, Colombia

ADMINISTRATIVE POSITIONS

- **Chair** (2018-present) Department of Industrial Engineering, Universidad de los Andes
- **Coordinator** (2008-Present) System Dynamics course, Universidad de los Andes
- **Student Affairs Committee** (2015-2017) Universidad de los Andes
- **Deputy Chair of Postgraduate Programs and Research** (2016-2017) Department of Industrial Engineering, Universidad de los Andes
- **Deputy Chair of Academic Affairs** (2014-2016) Department of Industrial Engineering, Universidad de los Andes
- **Disciplinary Committee** (2009-2015) Faculty of Engineering, Universidad de los Andes
- **Coordinator** (2009-2011) Systems Thinking in Organizations course, Universidad de los Andes
- **Coordinator** (2002-2003) Undergraduate Program in Industrial Engineering, Universidad de los Andes
- **Coordinator** (2000-2002) Graduate Program in Information Systems in Organizations, Universidad de los Andes

TEACHING EXPERIENCE

- **Universidad de los Andes, Colombia** (Faculties of Engineering, Social Sciences, Law, Architecture and Design, Business Administration)

Doctoral

Research Methods

Master

Evolutionary Theory and Applications in Organizations

Social Systems Engineering

System Dynamics (Industrial Engineering)

System Dynamics (Strategic Management of Architectural Projects)

Judge and Resources: Organizational Engineering of Justice Systems

Contemporary Problems of the Administration of Justice

Advanced Topics in Organizational Management

Research Tutorial: Evolutionism and Social Systems Engineering Design

Research Tutorial: System Dynamics as an observing Tool

Research Tutorial: Urban Mobility as a Social System, Concepts and Problems

Research Tutorial: Research Methods for Problem Modeling in Public Health

Research Tutorial: Elements for Model-Based Research Methods in Social Systems Engineering

Research Tutorial: Routine-Based Methodology for Organizational Intervention

Research Tutorial: Citizen Competencies as Evolving Rules

Applications of Operations Research

Policy and Decision Making in Global Organizations

Graduate Seminar

Organizational Diagnosis

Systemic Thinking

Specialization

Culture, Conflict and Negotiation

Negotiation Skills

International Negotiation

Undergraduate

System Dynamics

Applied System Dynamics

Justice Design Lab

Systems Thinking in Organizations

Public Systems

Organization Theory

Systemic Thinking

Introduction to Industrial Engineering

Final Project Seminar

Negotiation and Conflict Resolution

Conflict Analysis and Negotiation Skills

- **University of St. Gallen, Switzerland**

- Master**

- Management Simulation with System Dynamics

- Undergraduate**

- Systemic Modeling and Simulation Tools (*Werkzeuge für systemische Modellierung und Simulation*)

- Doing Business in Latin America

RESEARCH, ADVISORY & CONSULTANCY

- **Research director:** *Improvement of the Criminal Justice System*. Research Agreement between Universidad de los Andes, the Office of the Attorney General of Colombia and the Ministry of Justice and Law, Republic of Colombia.
- **Research director:** *Operational Dynamics of Coca Crops: An Engineering Perspective*. Security and Drugs Research Center (CESED), Universidad de los Andes.
- **Research director:** *Dynamic Model of Ciénaga Grande de Santa Marta*. Institute of Marine and Coastal Research (Invemar).
- **Research director:** *Selectionist Evolution of Knowledge in Social Systems*. Research Support for Assistant Professors Program, Universidad de los Andes.
- **Research co-director:** *Dynamics of Motor Vehicle Theft in Bogota*. Center for Criminal Research-SIJIN, Bogota Metropolitan Police.
- **Research co-director:** *Regional Model for Designing and Evaluating Public Policies on Information and Communication Technologies*. Ministry of Information and Communication Technologies, Republic of Colombia.
- **Researcher.** *Preparation of Standardized Performance Tests for the Training and Assessment of Critical Thinking Skills of University Students*. Universidad de los Andes.
- **Consultancy director:** *Building Better Justice: Strengthening Judicial Training in Colombia*. The American Bar Association // U.S. Department of State.
- **Consultancy director:** *Simulation and Costs of the Special Jurisdiction for Peace*. Ministry of Justice and Law, Republic of Colombia.
- **Consultancy director:** *Simulation Model of the Criminal Justice System*. Corporation for Excellence in Justice.
- **Consultant:** *Methodological and Technical Assistance for Structuring the Special Jurisdiction for Peace*. Special Jurisdiction for Peace Secretariat.
- **Consultant:** *Justice System Congestion Dynamics*. Corporation for Excellence in Justice, Superior Council of the Judiciary, Republic of Colombia.
- **Consultant:** *Salud-Mesoamérica 2015 Initiative*. Bill & Melinda Gates Foundation, Inter-American Development Bank.
- **Consultant:** *Dynamics of Cocaine Production*. Ministry of Justice and Law, Republic of Colombia.

- **Consultant:** *Workload Assessment, Management Model for the New Code of Civil Procedure.* The World Bank Group.
- **Consultant:** *Systemic Thinking for Justice Management.* Supreme Tribunal of Justice of the State of Chihuahua (Mexico) - Trust for Competitiveness and Citizen Safety (Ficosec), Mexico.
- **Consultant:** *Supply Chain Intervention for Continental AG: Modeling and Training in System Dynamics.* Institute of Management, University of St. Gallen, Continental AG.
- **Consultant:** *Colombia National Project: Strengthening Local Government Institutions In the Fight Against Corruption.* Centre for International Crime Prevention (CICP), United Nations Office on Drugs and Crime (Vienna) // Centro de Investigación y Consultoría GUIA & CIDER, Universidad de los Andes.
- **Advisor:** *Legislative Act 02/15 & Statutory Act on Administration of Justice,* Ministry of Justice and Law, Republic of Colombia.
- **Advisor:** *Member of the Advisory Council for the Development of the Ten-Year Plan of the Justice System,* Ministry of Justice and Law, Republic of Colombia.
- **Advisor:** *Plan for Integral Action in Security and Justice for El Salvador.* The World Bank Group.
- **Advisor:** *A Model for the Persistence of Narcotraffic.* HR Guillermo Rivera, Chamber of Representatives, Republic of Colombia.

PUBLICATIONS, PROCEEDINGS & INVITED TALKS

- **Social Systems Engineering: Theory and Methodology**

- **Olaya, C. (2020).** System Dynamics: Engineering Roots of Model Validation. In: Dangerfield B. (eds) System Dynamics. *Encyclopedia of Complexity and Systems Science Series.* Springer, New York, NY, 109-117.
- **Olaya, C. (2020).** Topics on Social Systems Engineering. *Annual INCOSE International Workshop - Social Systems Engineering: Practitioners Roundtable,* International Council on Systems Engineering, Torrance, CA.
- **Olaya, C. (2020).** Some Reflections on Ethics and Engineering. *Annual INCOSE International Workshop - AI and Ethics Session,* International Council on Systems Engineering, Torrance, CA.
- **Olaya, C. (2019).** The Possibilities are Wider (Position Paper for the Panel ‘Social Systems-Where Are We and Where Do We Dare to Go?’). *Book of Abstracts of the 29th Annual INCOSE International Symposium,* International Council on Systems Engineering, Orlando, FL.
- **Gomez-Quintero, J., Olaya, C., Guzman, L. et al. (2019).** Skilled System Dynamics Sailors: Developing Competences for Building S&F Models. *Proceedings of the 37th International Conference of the System Dynamics Society,* Albuquerque, New Mexico.
- **Olaya, C., Gomez-Quintero, J. et al. (2018).** Designing Systemic Policies: Zombies in the Classroom. *Proceedings of the 36th International Conference of the System Dynamics Society,* University of Iceland, Iceland.

- Olaya, C., Gomez-Quintero, J. et al. (2018).** Diseñando Políticas Sistémicas: Zombies en el Aula (Designing Systemic Policies: Zombies in the Classroom). *Proceedings of the 16th Latin American System Dynamics Conference*, Instituto Tecnológico y de Estudios Superiores de Monterrey, Puebla, Mexico.
- García-Díaz, C. & Olaya, C. (2018).** Social Systems Engineering. The Design of Complexity. Chichester: John Wiley & Sons.
- García-Díaz, C. & Olaya, C. (2018).** Introduction: The Why, What and How of Social Systems Engineering. In: García-Díaz, C. & Olaya, C. (Eds.), *Social Systems Engineering. The Design of Complexity*. Chichester: John Wiley & Sons.
- Olaya, C. (2017).** La datolatría en la Dinámica de Sistemas: reflexiones, peligros y desafíos (*Datalatry in System Dynamics: Reflections, Dangers and Challenges*). *15th Colombian System Dynamics Conference*, Universidad de Cartagena-Universidad Jorge Tadeo Lozano, Cartagena.
- Montoya, J., Muñoz, F. & Olaya, C. (2017).** Ingeniería: del dominio técnico a la competencia ética (*Engineering: from the technical domain to the ethical competence*). Congreso Internacional de Ética Profesional en Ingeniería (*International Conference of Engineering Professional Ethics*), Bogota, Colombia.
- Olaya, C., & Gomez-Quintero, J. (2016).** Conceptualization of Social Systems: Actors First. *Proceedings of the 34th International Conference of the System Dynamics Society*, Delft University of Technology, The Netherlands.
- Olaya, C. (2015).** Cows, Agency, and the Significance of Operational Thinking. *System Dynamics Review*, 31:4, 183–219.
- Hovmand, P., Guzman-Abello, L., Olaya, C., Munar, W. & Stahlschmidt, M.J. (2015).** The Capability Traps in Explaining the Capability Trap: Lessons from the Field on Conveying Generalizable System Insights. *Proceedings of the 33rd International Conference of the System Dynamics Society*, Cambridge, MA.
- Olaya, C. (2014).** The Scientist Personality of System Dynamics. *Proceedings of the 32nd International Conference of the System Dynamics Society*, Delft University of Technology, The Netherlands.
- Olaya, C. (2014).** Zapatero a tus zapatos: modelos de ingeniería vs. modelos científicos (*Stick to What you Know: Engineering Models vs. Scientific Models*). *Proceedings of the 12th Colombian System Dynamics Conference*, Universidad de Bogotá Jorge Tadeo Lozano.
- García-Díaz, C. & Olaya, C. (2014).** Coping with Social Systems: Agent Reflexivity in Computational Models. *16th Congress of the World Organization of Systems and Cybernetics*, University of Ibague, Colombia.
- Olaya, C. (2013).** Más ingeniería y menos ciencia por favor (*More Engineering, Less Science, Please*). *Proceedings of the 11th Latin American System Dynamics Conference*, Instituto Tecnológico y de Estudios Superiores de Monterrey, Ciudad de México.
- Olaya, C. (2012).** The Importance of Being Atheoretical: Management as Engineering. In: Grösser, S. & Zeier, R.(Eds.) *Systemic Management for Intelligent Organizations: Concepts, Model-Based Approaches and Applications*, Heidelberg: Springer, 21-46.
- Olaya, C. (2012).** Models that Include Cows: The Significance of Operational Thinking. *Proceedings of the 30th International Conference of the System Dynamics Society*, University of St. Gallen, Switzerland.

- Olaya, C. (2012).** Ingeniería industrial: ranchito aparte. *10th Colombian System Dynamics Conference*, Universidad Icesi-Universidad del Valle, Cali.
- Aceros, V., Díaz, A., Escobar J.S., García, A., Gómez-Quintero, J., Olaya, C. & Otero, V. (2011).** ¿Cualitativo o cuantitativo? Esa no es la cuestión: un método para el desarrollo de hipótesis dinámicas (*Qualitative or Quantitative? That's not the Question: a Method for Developing Dynamic Hypotheses*). *Proceedings of the 9th Latin American System Dynamics Conference*, Universidade de Brasília, Brasilia.
- Aceros, V., Díaz, A., Escobar J.S., García, A., Gómez-Quintero, J., Olaya, C. & Otero, V. (2011).** Competentes a los porrazos: la enseñanza de dinámica de sistemas en la Universidad de los Andes. (*Competents by Trial and Error: Teaching of System Dynamics at Universidad de los Andes*). *Proceedings of the 9th Colombian System Dynamics Conference*, Universidad del Rosario, Bogotá.
- Olaya, C., Lammoglia, N. & Zarama, R. (2010).** A 'Messi' Way of Life. In: Richards, T. (Ed.) *Soccer and Philosophy*, Popular Culture and Philosophy Series, Vol. 51. Open Court Publishing, 278-289.
- Torres, N. & Olaya, C. (2010).** Tackling the Mess: Causal-Loop Conceptualization of Solid Waste Management Systems through Cross-Impact Analysis. *Proceedings of the 28th International Conference of the System Dynamics Society*, Seoul, Korea.
- Olaya, C. (2009).** System Dynamics Philosophical Background and Underpinnings. In: Meyers, R. (Ed.) *Encyclopedia of Complexity and System Science* (1st Ed.). New York: Springer, Vol. 9: 9057-9078.
- Cruz, J. & Olaya, C. (2008).** A System Dynamics Model for Studying the Structure of Network Marketing Organizations. *Proceedings of the 26th International Conference of the System Dynamics Society*. Athens, University of Patras - Panteion University Greece.
- Mejía, A., Díaz, F., Díaz, G. & Olaya, C. (2007).** Ser directo puede traerte problemas, pero ser indirecto también: las realimentaciones en dinámica de sistemas cualitativa y cuantitativa. *Proceedings of the Fifth Latin American System Dynamics Conference*. Instituto Tecnológico de Buenos Aires, Argentina.
- Olaya, C. (2007).** Dinámica de Sistemas. *Ciclo preparatorio de conferencias - Segundo encuentro regional, congreso ALAS*. Universidad de Ibagué, Colombia.
- Schwaninger, M., Ambroz, K. & Olaya, C. (2006).** A Model for Systemic Control. *Computing Anticipatory Systems: CASYS 2005, AIP Conference Proceedings*, American Institute of Physics, Melville, NY. *Best Paper Award*. Volume 839, 549-559.
- Ambroz, K. & Olaya, C. (2006).** Failure to Learn from Cross-Cultural Interaction: Lessons from a Simulation Model of the Greenland Norse Colony. In: Bouncken, R. B. (Ed.), *Interkulturelle Kooperation*. Berlin: Duncker & Humblot, 115-127.
- Olaya, C. (2005).** The Significance of Addressing System Dynamics Explanations. *Proceedings of the 23rd International Conference of The System Dynamics Society*. Massachusetts Institute of Technology - System Dynamics Group, Cambridge, MA, USA.
- Olaya, C. (2005).** Towards a Notion of Explanation in Complexity Science. *Complexity, Science and Society Conference*. The Centre for Complexity Research, University of Liverpool, Liverpool – England.
- Olaya, C. (2004).** System Dynamics Explanations as Mechanisms and Some Implications For Theory Building. *Proceedings of the 22nd International Conference of the System Dynamics Society*. Keble College, University of Oxford, England.

Olaya, C. (2004). System Dynamics Explanations as Mechanisms (with—Maybe—Some Implications for Theory Building). *Ph.D. Round Tables for students in the field of System Dynamics and related disciplines*. The Swiss Chapter of the System Dynamic Society. University of St. Gallen.

Olaya, C. (2002). Segundo Orden en Dinámica de Sistemas Complejos ("Second Order in Complex Systems Dynamics"). *V Feria Sistémica*. Universidad de los Andes, Bogotá – Colombia.

▪ Evolutionary Engineering of Social Systems

Olaya, C. (2019). The Experimenting University. *Kybernetes*, 48:7, 1398-1417.

Noguera, A., Olaya, C., & Montoya, A. (2019). La estrategia organizacional desde un enfoque evolutivo: ¿Diseño sin diseñador? (*Organizational Strategy from an Evolutionary Approach: Design without a Designer?*), *Memorias LIV Asamblea Anual CLADEA 2019, Consejo Latinoamericano de Escuelas de Administración*, Lima, Perú.

Olaya, C. (2018). Evolutionary Universities: Designing for Parallel Experimentation. In: Dominici, G. (Ed.). *Cocreating Responsible Futures in the Digital Age: Exploring new paths towards economic, social and environmental Sustainability*. Business Systems Laboratory, Italy, 191-195.

Olaya, C., Guzmán, L. & Gomez-Quintero, J. (2017). An Engineering Perspective for Policy Design: Self-Organizing Crime as an Evolutionary Social System. *Trends in Organized Crime*. 20:1, 55–84.

Olaya, C., Guzmán, L. & Gomez-Quintero, J. (2015). Corruption as a Matter of Ontology: Or How to Design Realistic Policies against Self-Organizing Complexities. *27th Annual Conference of the European Association for Evolutionary Political Economy*. University of Genoa, Italy.

Schaffernicht, M. & Olaya, C. (2012). Modeling as Autonomous System: Varela Meets Darwin. *Proceedings of the 30th International Conference of the System Dynamics Society*, University of St. Gallen, Switzerland.

Olaya, C., Gómez-Quintero, J. & Salas, D. (2012). Ontology in Action: Urban Mobility as Evolving Knowledge. Paper presented at the *24th Annual Conference of the European Association for Evolutionary Political Economy*. Cracow University of Economics, Cracow, Poland.

Gómez-Quintero, J., Olaya, C. & Salas, D. (2012). Simulación para el diseño de políticas en sistemas vivos: el caso de la movilidad urbana. (*Simulation for Policy Design in Living Systems: the Case of Urban Mobility*). 9o Congreso Latinoamericano IIE, Universidad de los Andes, Bogotá.

González, M.A., Ramirez, C. & Olaya, C. (2011). How to Design Culturally Appropriate Engineering Solutions for Vulnerable Communities? In: Doolen, T. & Van Aken, E. (Eds). *Proceedings of the 2011 Industrial Engineering Research Conference*. Reno, NV, USA.

Olaya, C. (2011). Introducción a la economía evolutiva. *Seminario "Temas de actualidad en Economía"*, Universidad de Ibagué, Colombia.

Lammoglia, N.L., Olaya, C., Villalobos, J., Calderón, J.P., Valdivia, J.A. & Zarama, R. (2010). Heuristic-Based Management (I): Variation. *Kybernetes*, 39, 1513 - 1528.

- Salas, D. & Olaya, C. (2010).** Darwin en el aula: conjetura sobre la posibilidad de una educación seleccionista. (*Darwin in the Classroom: Conjecture on the possibility of a Selectionist Education*). *12th International Conference on Philosophy of Education*. Universidad de los Andes, Colombia.
- Salas, D. & Olaya, C. (2009).** No More “Learning”: Selectionist Education for the Classroom. *Proceedings of the 21st Annual Meeting of the Human Behavior and Evolution Society*. Fullerton, California State University, CA, USA.
- Olaya, C. (2008).** The End of Control. *International Journal Of Applied Systemic Studies* Vol. 2, No.1/2, 127-145.
- Olaya, C. (2007).** Can The Whole Be More Than The Computation Of The Parts? A Reflection On Emergence. In: Gershenson, C., Aerts, D., & Edmonds, B. (Eds). *Worldviews, Science and Us. Philosophy and Complexity: Essays on Epistemology, Evolution, and Emergence*. Singapore/London: World Scientific, 81-98

▪ **Applications: Justice and Security**

- Olaya, C. & Rodriguez, L.S. (2019).** Ingeniería Criminológica: construir políticas criminológicas útiles y efectivas (*Criminological Engineering: Building Useful and Effective Criminological Policies*). In García-López, E. (Ed.). *Psicopatología de la violencia: Aspectos jurídicos y evaluación criminológica*, Bogotá: Editorial Manual Moderno, 15-31.
- Sissa, A., Carrasco D., & Olaya, C. (2019).** La congestión judicial: un problema de salud (*Judicial Congestion: a Health Problem*) *Proceedings of the 17th Latin American System Dynamics Conference*, Universidad de los Andes, Bogota.
- Olaya, C. (2018).** ICT for public governance and judicial procedures: opportunities and challenges. *ICT and the Rule of Law: Information, Communications and Technology for Peace Symposium*. Sustainable Development Solutions Network, Universidad de los Andes.
- Olaya, C., Gomez-Quintero, J. & Navarrete, A. (2018).** Crime and Punishment as a Social System: The Case of Prison Overcrowding. *Kybernetes*, 47:2, 369-391.
- Olaya, C., Gomez-Quintero, J. & Navarrete, A. (2018).** Punished by Punishment: How Model-Based Policies Counteract Delayed-Feedback in Prison Overcrowding. In: Barile et al. (Eds.) *Cybernetics and Systems: Social and Business Decisions*, Routledge.
- Olaya, C. (2017).** Engineering the Special Jurisdiction for Peace. *Build Peace Conference*, Universidad de los Andes.
- Olaya, C. (2017).** Experiencias en ingeniería criminológica (*Experiences in Criminological Engineering*). *Panel Discussion on Crime and Security*, Policía Nacional, Dirección de Investigación Criminal DIJIN-INTERPOL, Universidad de los Andes, Colombia.
- Olaya, C. & Victorino, M.A. (2017).** The Power of Operational Thinking for Engineering Social Systems: A Tale of Crime and Police Work in an Urban District. *Proceedings of the 35th International Conference of the System Dynamics Society*, Massachusetts Institute of Technology - System Dynamics Group, Cambridge, MA, USA, 1224-1242.
- Olaya, C. (2017).** Crimen: cuestión de ingeniería (*Crime: A Matter of Engineering*). In: Benavides, F. (Ed.) *Criminología en Colombia*, Bogotá: Grupo Editorial Ibáñez, 347-389.
- Rodríguez, L.S., García, A., Serge, A. & Olaya, C. (2017).** Drogodependencia en mujeres colombianas (*Drug Dependence in Colombian Women*). In: Norza, E., & Egea, G. (Eds.)

Con-ciencia criminal. Criminología, psicología jurídica y perfilación criminal, Bogotá: Editorial Manual Moderno, 335-369.

- Navarrete, A., Olaya, C. & Gomez-Quintero, J. (2016).** To Legislate or not to Legislate? That is the Question: How Legislative Inflation Boosts Prison Overcrowding. *Proceedings of the 34th International Conference of the System Dynamics Society*, Delft University of Technology, The Netherlands.
- Olaya, C. & Rodríguez, L.S. (2016).** Ingeniería criminológica: construir políticas efectivas (*Criminological Engineering: Building Effective Policies*). *10º International Conference of the Ibero-American Association of Legal Psychology (AIPJ)*. Universidad Lusófona, Lisboa, Portugal.
- Rodríguez, L.S., García, A., Serge, A.C. & Olaya, C. (2016).** Dinamica de la drogodependencia en mujeres colombianas: políticas por construir. (*Dynamics of Drug Dependence in Colombian Women: Policies Making*). *10º International Conference of the Ibero-American Association of Legal Psychology (AIPJ)*. Universidad Lusófona, Lisboa, Portugal.
- Olaya, C., Guzmán, L. & Gomez-Quintero, J. (2015).** Corruption as a Design Problem of Social Systems. *Societal Dimensions of Organised Crime Conference*, National Research Council, Rome, Italy.
- Olaya, C. (2015).** Justice Administration: A Systems Design Matter. *Challenges of the New Justice Administration National Forum*. Ministry of Justice and Law, Bogota.
- Olaya, C. (2015).** Justice Administration as an Engineering Problem. *Justice Administration and Government Forum*. Ministry of the Interior, Ministry of Justice and Law, Inter-American Development Bank. Universidad de los Andes, Bogota.
- Olaya, C. & Angel, V. (2014).** The War on Drugs: A Failure in (Operational) Thinking. *Proceedings of the 32nd International Conference of the System Dynamics Society*, Delft University of Technology, The Netherlands.
- Olaya, C. (2014).** La irrelevancia del naturalismo criminológico: una invitación a la ingeniería. *Notas criminológicas*, Vol. 1, 6-10.
- Olaya, C. (2014).** La justicia como sistema (*Justice as a System*). Invited lecture. Supreme Tribunal of Justice of the State of Chihuahua, Chihuahua, Mexico.
- Olaya, C. (2013).** On the Case of the Colombian Crime Observatory as a Criminological Think Tank. *Institutional Reforms in the Justice Sector in LAC: A Public Sector Perspective Discussion Series*. Latin America and Caribbean Region Public Sector Management Unit, The World Bank, Washington, D.C.
- Olaya, C. (2013).** La idea de “sistema” y el sistema penal colombiano (*The idea of ‘system’ and the Colombian criminal justice system*). *Hacia un plan de Acción Integral en Justicia y Seguridad para El Salvador*. The World Bank Group, San Salvador.
- Olaya, C. (2012).** Institutional Engineering from an Engineering Perspective. *Institutions Matter for Security: But How? Regional Seminar Series*. Latin America and Caribbean Region Public Sector Management Unit, The World Bank, Washington, D.C.
- Olaya, C. (2012).** Ingeniería criminológica: presentación en sociedad. *Simposio de criminología*, I Congreso Nacional de Psicología Jurídica, Universidad Nacional, Bogotá.
- Olaya, C., Rodríguez, L.S. (2011).** Modelos dinámicos del crimen (*Dynamic Models of Crime*). *Investigación Criminológica*., Vol. 2, No. 2, 21-26.

- Rodríguez, L.S. & Olaya, C. (2011).** Fenómeno del hurto de automotores en Bogotá a partir de una conceptualización sistémica apoyada en modelos de simulación continua. (*A Systemic Approach to Auto Theft in Bogotá Based on Continuous Simulation Models*). Primer simposio de investigación en psicología jurídica, Universidad Manuela Beltrán, Universidad Nacional.
- Olaya, C. (2011).** Modelos de simulación aplicados a la seguridad y la justicia (*Application of Simulation Models to Security and Justice*). *II Encuentro Internacional y V Nacional de la Red de Observatorios del Delito "Políticas públicas y el conocimiento del delito"*, Policía Nacional, Dirección de Investigación Criminal DIJIN-INTERPOL, Bogotá.
- Rivera, G. Beltrán, I. & Olaya, C. (2011).** Innovación criminal vs innovación del Estado (*Crime Innovation vs State Innovation*). Documentos de trabajo (*policy papers*) del Instituto del Pensamiento Liberal, No. 001, Bogotá.
- Rivera, G. Beltrán, I. & Olaya, C. (2011).** Estado vs narcotráfico: una comparación organizacional (*State vs. Narcotraffic: an Organizational Comparison*). Reporte técnico para debate de control político de la Sesión Plenaria de la Cámara de Representantes de la República de Colombia.
- Olaya, C. (2010).** Model-Based Lawmaking and the Curious Case of the Colombian Criminal Justice System. *Kybernetes*, 39, 1678 - 1700.
- Olaya, C., Salinas, M. & Beltrán, I. (2010).** Theorizing about Crime: Elements for a Contribution of System Dynamics to Criminology. *Proceedings of the 28th International Conference of the System Dynamics Society*, Seoul, Korea.
- Pardo, L. & Olaya C. (2009).** Laws as Models: Demobilization and Congestion in Colombia's Justice and Peace Process. *23rd European Conference on Operational Research*, Stream: System Dynamics Modelling. Gustav-Stresemann Institute, Bonn, Germany.
- Olaya, C. (2009).** Retos de la modernización de la justicia en Latinoamérica: una mirada al nuevo sistema penal acusatorio colombiano. Centro Latinoamericano-Suizo de la Universidad de San Gallen (CLS-HSG), San Gallen, Switzerland.
- Olaya, C., Díaz, G. & Ramos, A. (2008).** The Power of the Stock: Accumulations in the Colombian Accusatory System Reform. *Proceedings of the 26th International Conference of the System Dynamics Society*. Athens, University of Patras - Panteion University Greece.
- Díaz, G. & Olaya, C. (2003).** Aproximación a las Políticas para el Control y la Erradicación de Cultivos Ilícitos en Colombia. (*Analysis of the Policies for Control and Eradication of Illicit Cultivations in Colombia*). *Proceedings of the First Latin American System Dynamics Conference*. Instituto Tecnológico y de Estudios Superiores de Monterrey, Campus Monterrey – México.
- Olaya, C. (2002).** Manizales: Preparatory Assistance Report. *Strengthening the Local Government in the Fight against Corruption*. Project subscribed within the The Global Programme against Corruption. Centre for International Crime Prevention (CICP) – United Nations Office for Drug Control and Crime Prevention.

▪ Applications: Public Policy and Management

- Meisel, J.D., Sarmiento, O.L., Olaya, C., Lemoine, P.D., Valdivia, J.A. & Zarama, R. (2018).** Towards a novel model for studying the nutritional stage dynamics of the Colombian population by age and socioeconomic status. *PLoS One* 13(2):e0191929, 1-22.

- Díaz, A. & Olaya, C. (2017).** An Engineering View for Social Systems: Agency as an Operational Principle for Designing Higher Education Access Policies. *Systemic Practice and Action Research*, 30:6, 627-649.
- Meisel, J.D., Sarmiento, O.L., Olaya, C., Valdivia, J.A. & Zarama, R. (2016).** A System Dynamics Model of the Nutritional Stages of the Colombian population, *Kybernetes*, 45:4, 554-570.
- Olaya, C. (2015).** Liderazgo: pura ingeniería de sistemas (*Leadership: Pure Systems Engineering*). *Tribuna - Revista de asuntos públicos*, 10, 28-32.
- Meisel, J.D., Sarmiento, O.L., Olaya, C. & Zarama, R. (2014).** A System Dynamics Model of the Nutritional Stage of the Colombian Population by Socioeconomic Status. *16th Congress of the World Organization of Systems and Cybernetics*, University of Ibagué, Colombia.
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información y comunicación en Colombia. Iniciativa conjunta con el Ministerio de Comunicaciones. Facultad de Ingeniería, Universidad de los Andes, Bogotá.

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▪ Applications: Production and Management

- Cortés, A.M., Useche, A.F. & Olaya, C. (2017).** Jugando con los pollos: un simulador para promover decisiones sistémicas en MaxiAlimentos (*Playing with chickens: a simulator to promote systemic decisions in MaxiAlimentos*), *Proceedings of the 15th Latin American System Dynamics Conference*, Universidad de Chile, Santiago de Chile, 378-419.
- Olaya, C. (2014).** El sentido empresarial hacia la seguridad y competitividad (*The Business Direction towards Security and Competitiveness*). Trust for Competitiveness and Citizen Safety (Ficosec), Chihuahua, Mexico.
- Venegas, F. & Olaya, C. (2010).** Dinámica de Sistemas como apoyo a la toma de decisiones frente un posible escenario de crisis económica en una empresa colombiana. *Proceedings of the 5th International Conference on Production Research, ICPR – Americas 2010*. Universidad de los Andes, Colombia.
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THESES COMMITTEES

▪ Doctoral Theses Supervision

Acceso a la educación superior: un puente entre la investigación en ingeniería y el diseño de políticas (*Access to higher education: a bridge between engineering research and policy design*). Adriana Díaz. Doctorado en Ingeniería, Universidad de los Andes.

The Dynamics of Obesity from a Systemic Approach. José David Meisel. Doctorado en Ingeniería, Universidad de los Andes.

Auto-organización en sistemas socio-ecológicos para la gestión del cambio ambiental (*Self-organization in socio-ecological systems for the management of environmental change*). David Guzmán. Doctorado en Administración, Universidad de los Andes.

La relación organización-entorno y la ontología evolutiva: una propuesta para la comprensión de las interacciones como producto del proceso evolutivo de reglas con la caracterización de la prestación del servicio de salud en urgencias (*The organization-environment relation and the evolutionary ontology: a proposal for the understanding of interactions as a product of the evolutionary process of rules with the characterization of the provision of the health service in the emergency room*). Ángela Noguera. Doctorado en Ciencias de la Dirección. Universidad del Rosario.

▪ Doctoral Theses Committees

Propuesta para la valoración tecnológica desde la perspectiva de la Síntesis Evolutiva Moderna (*Proposal for technological assessment from the perspective of the Modern Evolutionary Synthesis*). Claudia Jiménez. Doctorado en Ingeniería – Industria y Organizaciones, Universidad Nacional de Colombia.

Configuración de rutinas de capacidad de absorción (*Configuration of absorption capacity routines*). Orlando López. Doctorado en Ingeniería, Pontificia Universidad Javeriana.

Ingeniería para la planificación del desarrollo urbano a partir de las necesidades de los habitantes (*Engineering for urban development planning based on the needs of the inhabitants*). Mauricio González. Doctorado en Ingeniería, Pontificia Universidad Javeriana.

Cooperación sostenible en redes de política pública (*Sustainable cooperation in public policy networks*). Gloria Pérez. Doctorado en Política Pública, Instituto Tecnológico y de Estudios Superiores de Monterrey, México.

Insight Interacting Social Systems: The Study of the Spatial and Temporal Components. Pablo Medina. Doctorado en Ingeniería, Universidad de los Andes.

The spread of healthy behaviors in social networks through megatrends: a promising strategy for potentiating public health interventions. Felipe Montes. Doctorado en Ingeniería, Universidad de los Andes.

Gestión de conocimiento inter-organizacional: el caso de las nanotecnologías (*Inter-organizational knowledge management: the case of nanotechnologies*). Constanza Pérez. Doctorado en Ingeniería, Universidad de los Andes, Doctorado en Sociología Industrial (Université de Grenoble).

Efectos del control social pro peatón en el comportamiento de los conductores de vehículos automotores (*Effects of Social Control on the Behavior of Vehicle Drivers*). Jairo Pérez. Doctorado en Ingeniería, Universidad Pontificia Bolivariana.

Towards Understanding the Relation Between Transmilenio and Walking for Transportation. Pablo Lemoine. Doctorado en Ingeniería, Universidad de los Andes.

Modelación hidrodinámica de la ecorregión de La Mojana como contribución a la gestión integrada del recurso hídrico (*Hydrodynamic modeling of the La Mojana ecoregion as a contribution to the integrated management of water resources*). Paula Villegas. Doctorado en Ingeniería, Pontificia Universidad Javeriana.

A Systemic Decision-Enhancement Service for Sustainable WEEE Management in Developing Countries. Sandra Méndez. Doctorado en Ingeniería, Pontificia Universidad Javeriana.

Cohesion and homophily in networks. Deyssi Katherine Guerrero. Doctorado en Ingeniería, Universidad del Valle.

Antecedentes informacionales y estructurales de resistencia al cambio en contextos de cooperación: un enfoque del individuo y su entorno social inmediato (*Information and structural antecedents of resistance to change in contexts of cooperation: an approach from the individual and his immediate social environment*). Doctorado en Psicología, Universidad de los Andes.

▪ **Master and Undergraduate**

Supervision of approx. 60 master theses and 200 undergraduate theses/capstone projects.

EDITORIAL, ACADEMIC & PROFESSIONAL SERVICE

▪ **Editor**

Revista de Dinámica de Sistemas (Editorial Board)
Notas Criminológicas (Editorial Board)
International Journal of Systems and Society (Editorial Review Board)
Revista de Ingeniería, Universidad de los Andes (Editorial Board)
Revista de Tecnología, Universidad El Bosque (Editorial Board)
Universidad & Empresa, Universidad del Rosario (Scientific Advisor)
Investigación Criminológica, DIJIN-INTERPOL (Guest Editor)

▪ **Referee**

System Dynamics Review
Systems Research and Behavioral Science
Kybernetes
Journal of Simulation
Trends in Organized Crime
Foundations of Science
Synthese
International Journal of Applied Systemic Studies
Criminalidad
Ingeniería y universidad
Education for Chemical Engineers
Academia - Revista Latinoamericana de Administración

▪ **Program Committees & Chair**

Chair of the Human Behavior Thread, International Conference of the System Dynamics Society: Cambridge 2015, Delft 2016, Cambridge 2017, Reykjavík 2018, Albuquerque 2019

Member of the Program Committee, Asian-Pacific Region System Dynamics Conference: Singapore 2017

Conference Chair, Congreso Latinoamericano de Dinámica de Sistemas: Bogota 2019

Member of the Academic Committee, Congreso Latinoamericano de Dinámica de Sistemas: Monterrey 2003, Cartagena 2015, Bogota 2019

▪ **Submission Reviewer**

International Conference of the System Dynamics Society: Cambridge 2005, Nijmegen 2006, Cambridge 2007, Athens 2008, Albuquerque 2009, Seoul 2010, St. Gallen 2012, Cambridge 2013, Delft 2014, Cambridge 2015, Delft 2016, Cambridge 2017, Reykjavík 2018, Albuquerque 2019

Annual PhD Colloquium of the Student Chapter of the System Dynamics Society (Guest Discussant): Delft 2016, Cambridge 2017, Reykjavík 2018

Congreso Latinoamericano de Dinámica de Sistemas: Monterrey 2003, Cartagena 2005, Cancún 2006, Ciudad de México 2013, Bogota 2019

Encuentro Colombiano de Dinámica de Sistemas: Cartagena 2005, Bogotá 2006, Medellín 2007, Medellín 2010, Cali 2012, Bogota 2019

Production Systems and Supply Chain Management in Emerging Countries: Best Practices. Mejía, G., & Velasco, N. (Eds.), 2012, Heidelberg: Springer

International Conference on Production Research, ICPR – Americas: Bogotá 2010

Congreso Latino-Iberoamericano de Investigación de Operaciones (CLAIO): Cartagena 2008

Philosophy and Complexity: Essays on Epistemology, Evolution, and Emergence. Gershenson, C., Aerts, D., & Edmonds, B. (Eds.) 2007, London: World Scientific

▪ **Member of Board of Directors**

Asociación Colombiana de Criminología

Asociación Somos CaPAZes

ACADEMIC AND PROFESSIONAL COMMITMENTS

▪ **System Dynamics Society**

Latin American Chapter

Comunidad Colombiana

▪ **Institute of Industrial and Systems Engineers (IISE)**

▪ **Society for Engineering and Management Systems (SEMS)**

▪ **International Council on Systems Engineering (INCOSE)**

Social Systems Working Group (SocWG)

▪ **The Society for Philosophy and Technology**

▪ **Teso Research Group**, Unv. de los Andes, Clasificación A1, Colciencias, Investigador Senior (IS).

▪ **Centro de Estudios sobre Seguridad y Drogas – CESED** (*Security and Drugs Research Center*), Universidad de los Andes.

HONORS & RECOGNITIONS

- **Guest Jury.** Premio Excelencia en la Justicia (*Excellence in Justice Award*), Corporación Excelencia en la Justicia, Bogota, 2019.
- **Paper invited** for the plenary session of the 16th Latin American System Dynamics Conference, Instituto Tecnológico y de Estudios Superiores de Monterrey, Puebla, Mexico, 2018.
- **Guest Jury.** Premio Excelencia en la Justicia (*Excellence in Justice Award*), Corporación Excelencia en la Justicia, Bogota, 2018.
- **Guest speaker** for the plenary session of 15th Colombian System Dynamics Conference, Universidad de Cartagena-Universidad Jorge Tadeo Lozano, Cartagena, 2017.
- **Special recognition** by Inandes, Capítulo de Ingeniería Industrial, Uniandinos for commitment with Industrial Engineering, 2017.
- **Best Poster Award.** To Legislate or not to Legislate? That is the Question: How Legislative Inflation Boosts Prison Overcrowding (with A. Navarrete & J. Gomez-Quintero), *34th International Conference of the System Dynamics Society*, Delft University of Technology, The Netherlands, 2016.
- **Invited Expert** for the worldwide project that developed a competence development framework for learning and teaching system dynamics, 2016.
- **Best Poster Award.** The Capability Traps in Explaining the Capability Trap: Lessons from the Field on Conveying Generalizable System Insights (with P. Hovmand, L. Guzman-Abello, W. Munar & M.J. Stahlschmidt), *33rd International Conference of the System Dynamics Society*, Cambridge, MA, 2015.
- **Best Paper Award.** A System Dynamics Model of the Nutritional Stage of the Colombian Population by Socioeconomic Status (with JD Meisel, OL Sarmiento & R Zarama), *16th Congress of the World Organization of Systems and Cybernetics*, 2014.
- **Guest speaker** for the plenary session of 12th Colombian System Dynamics Conference, Universidad de Bogotá Jorge Tadeo Lozano, 2014.
- **Guest speaker** for the plenary session of the 11th Latin American System Dynamics Conference, Instituto Tecnológico y de Estudios Superiores de Monterrey, Ciudad de México, 2013.
- **Paper selected** for the opening plenary session of the 30th International Conference of the System Dynamics Society, “Models that Include Cows: The Significance of Operational Thinking” (Olaya, 2012).
- **Guest speaker** for the plenary session of the 10th Colombian System Dynamics Conference, Universidad Icesi-Universidad del Valle, Cali, 2012.
- **Selected by the students and invited** to the Colloquium of courses that promote Critical Thinking at Universidad de los Andes, 2011.
- **Advisor** of the paper “Resocialización en el Sistema Penitenciario y Carcelario de Colombia, conceptualización desde la Dinámica de Sistemas” (Andrés Romero, Universidad de los Andes), 2nd place in the IIE Technical Paper Competition, IIE Regional Conference 2010.
- **Nominated and Invited Author** to contribute to the Encyclopedia of Complexity and System Science, edited by Springer, published in 2009.
- **Co-President**, Comunidad Colombiana de Dinámica de Sistemas, 2009-2010.
- **Outstanding Professor.** Faculty of Engineering, Universidad de los Andes, Bogotá, Colombia. Annual Evaluation, 2008.

- **Selected Paper and Guest Referee** for *Worldviews, Science and Us. Philosophy and Complexity: Essays on Epistemology, Evolution, and Emergence* (Gershenson, C., Aerts, D., & Edmonds, B. Eds.). Singapore/London: World Scientific, 2007.
- **Selected Paper** presented at *Wissenschaftliche Jahrestagung der Gesellschaft für Wirtschafts- und Sozialkybernetik* (Conference, Universität Greifswald) invited to contribute to *Interkulturelle Kooperation* (Bouncken, R. B. Ed.), Berlin: Duncker & Humblot, 2006.
- **Best Paper Award.** A Model for Systemic Control. (with Markus Schwaninger & Kristjan Ambroz). *Computing Anticipatory Systems: CASYS 2005*, for the Symposium Risk Management, Economical Systems, Social Models, Operations Research. Liège, Belgium, 2005. Afterwards published by the AIP (American Institute of Physics).
- **Best Professor.** Department of Industrial Engineering, Universidad de los Andes, Bogotá, Colombia. Mar. 2001 & Sep. 2003. Based on the former general survey to bachelor graduating seniors.