

Curriculum Vitae

Dario Landa-Silva

Professor in Computational Optimisation

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Fellow of the Higher Education Academy

Research and Teaching Interests

Scientific research at the interface between computer science, operations research and artificial intelligence for the application of modelling, search and optimization techniques (e.g. meta-heuristics, hyper-heuristics, evolutionary algorithms, mathematical programming, multi-objective and multi-criteria methods) to tackle constrained combinatorial problems (e.g. vehicle routing, transport planning, personnel scheduling, timetabling, task assignment, room assignment, office space allocation, space planning and similar problems) in order to underpin the development of intelligent decision support systems across a range of real-world applications. Head of the Computational Optimisation and Learning Lab (<https://www.nottingham.ac.uk/research/groups/col/index.aspx>).

Over 28 years of experience in teaching a variety of courses in Universities and Colleges in the UK, Mexico, South Korea and the Czech Republic. Courses taught in the areas of Computer Science, Operations Research and Artificial Intelligence.

Academic Qualifications

- Postgraduate Certificate in Higher Education (PGCHE), University of Nottingham, 2012. Course accredited by the Institute for Learning and Teaching in Higher Education.
- PhD in Computer Science, University of Nottingham, 2003. Thesis: *Metaheuristics and Multiobjective Approaches for Space Allocation*. Examination: 19 August 2003. Sponsored by a PROMEP award from CONACYT (National Council for Science and Technology) and by the Universidad Autónoma de Chihuahua in Mexico.
- MSc in Engineering and Computer Science, Instituto Tecnológico de Chihuahua, 1997. Thesis: *Caracterización de los Dermatoglifos Palmares como una Nueva Metodología de Identificación Biométrica (Characterization of the Hand Palms Dermatoglyphics as a New Approach for Biometric Verification)*. Examination: 14 March 1997. Sponsored by CONACYT (National Council for Science and Technology) and by the Universidad Autónoma de Chihuahua in Mexico.
- BSc in Industrial Electronic Engineering, Instituto Tecnológico de Veracruz, 1991. Studentship from SEP (Ministry of Public Education).
- Certificate in Electro-mechanics, CBTIS 13, 1987.

History of Professional Activities

- Principal investigator on research and knowledge transfer grants from EPSRC and Innovate UK with a total value of over £1.6M
- Principal investigator on internal grants from University of Nottingham through Impact Acceleration and EPSRC Secondment with a total value of over £18K
- Over 100 scientific publications in journals, edited books, and proceedings of international conferences and workshops, see: <http://www.cs.nott.ac.uk/~pszjds/research/publications.html>
- Co-lead of the theme Smart Systems and Operations in the TMC@Nottingham Initiative, see: <https://www.nottingham.ac.uk/research/groups/tmc/research/smart-systems-and-operations.aspx>
- Member of Editorial Board for the journals: Memetic Computing (Springer) and Neural Computing and Applications (Springer).

- Member of various Programme and Technical Committees of international conferences and workshops, see: <http://www.cs.nott.ac.uk/~pszjds/committees.html>
- Chair and Co-chair of various streams, tracks and special sessions in international conferences and workshops, see: <http://www.cs.nott.ac.uk/~pszjds/committees.html>
- Referee for scientific journals, see: <http://www.cs.nott.ac.uk/~pszjds/reviewing.html>
- Leader of NATCOR Course '*Heuristics and Approximation Algorithms*' during 2014, 2016, 2018, 2020 and 2022, see: <http://www.natcor.ac.uk/courses/>
- Research Supervision Completed:
 - 3 Post-doctoral Research Projects
 - 1 R&D Collaborative Project and 6 Industrial Research Associate (KTP project)
 - 10 PhD Theses and 1 MRes Thesis
- Book reviewer for Journal of the Operational Research Society and Interfaces Journal, see: <http://www.cs.nott.ac.uk/~pszjds/reviewing.html>

Past Employment

- Associate Professor in Computer Science, University of Nottingham, August 2012-July 2019.
- Lecturer in Computer Science, University of Nottingham, May 2004-July 2012.
- Post-doctoral Research Associate, University of Nottingham, April 2002-April 2004.
- Tutor in Information Technology, Centre for Continuing Education, University of Nottingham, September 2000-February 2009.
- Lecturer in Computing, Broxtowe College, Nottingham, January-June 2002.
- Associate Professor in Computer Science, Universidad Autónoma de Chihuahua, Mexico, 1994-1999.
- Senior Lecturer in Computer Science, Instituto Tecnológico de Chihuahua II, Mexico, 1996-1999.
- Manufacturing Process Engineer, ALTEC Electrónica de Chihuahua, Mexico, Dec 1994 – Feb 1995.
- Lecturer in Science, Colegio de Bachilleres 4, Mexico, Aug-Dec 1994.
- Electronic Design Engineer, PNLV – CFE (Federal Commission for Electricity), Mexico, 1991-1992.
- Electronic Maintenance Engineer, Compañía Cervecería del Trópico, Mexico, 1991.

Teaching Experience

- High scores in the student evaluations of teaching, consistently obtaining over 90% satisfaction.
- Linear and Discrete Optimization, University of Nottingham, since 2016.
- Introduction to Artificial Intelligence, Korea University (Visiting Professor), Six Weeks During July and August, since 2022.
- Introduction to Computer Science, Korea University (Visiting Professor), Six Weeks During July and August, since 2010.
- Operations Research in Practice, Korea University (Visiting Professor), Six Weeks During July and August, since 2017 until 2019.
- Introduction to Management Science, Korea University (Visiting Professor), Six Weeks During July and August, since 2014 until 2016.
- Data Analysis and Business Modelling (ISC296), Korea University (Visiting Professor), Six Weeks During July and August, since 2011 until 2013.
- Simulation and Optimization for Decision Support, University of Nottingham, since 2017 until 2020.
- Computers in the World, University of Nottingham, 2014-2015.
- Operations Research and Modelling, University of Nottingham, 2010-2015.
- Heuristic Methods for Search and Optimization, Masaryk University (Czech Republic), Erasmus Mobility, April 2010.
- Operations Research and Optimisation, University of Nottingham, 2008-2012.
- Quality Assurance and Testing, University of Nottingham, 2010.
- Heuristic Search Methods, University of Nottingham, 2008-2010.

- Algorithm Design and Operations Research, University of Nottingham, 2007-2010.
- Computability, University of Nottingham, 2005-2007.
- Large Scale Systems Design, University of Nottingham, 2005-2008.
- Commercial and Industrial Systems Design, University of Nottingham, 2004-2005.
- Tutor in Information Technology, Centre for Continuing Education, September 2000-February 2009.
- **Other Courses Taught in Higher (UG and PG) Education:** Security in Personal Computing, PC Fundamentals, Information Age, Digital Media, Digital Sound and MIDI Production, IT Project, Diploma in Office Application Software, Discrete Mathematics, Algorithms Design, Theory of Computational Languages, Data Structures, C/C++ Programming, Artificial Intelligence, Computer Graphics, Compilers Construction, Intelligent Systems, Systems Programming, Delphi Programming.
- External Examining for the MSc programme at the University of Kent and joint MSc between University of Kent and Hong Kong Baptist University. From October 2018 to August 2022.

Selected Publications

See the full list at <http://www.cs.nott.ac.uk/~pszjds/research/publications.html>

- *Soft Clustering-Based Scenario Bundling for a Progressive Hedging Heuristic in Stochastic Service Network Design.* Xiaoping Jiang, Ruibin Bai, Stein W. Wallace, Graham Kendall, Dario Landa Silva. Computers & Operations Research, Vol. 128, No. 105182, 2021. DOI: 10.1016/j.cor.2020.105182.
- *EUSC: A Clustering-Based Surrogate Model to Accelerate Evolutionary Undersampling in Imbalanced Classification.* Hoang Lam Le, Dario Landa-Silva, Mikel Galar, Salvador Garcia, Isaac Triguero. Applied Soft Computing, Vol 101, No. 107033, 2021. DOI: 10.1016/j.asoc.2020.107033.
- *Adaptive Multiple Crossover Genetic Algorithm to Solve Workforce Scheduling and Routing Problem.* Haneen Algethami, Anna Martinez-Gavara, Dario Landa-Silva. Journal of Heuristics, Vol 25, No. 4-5, pp. 753-792, 2019. DOI: 10.1007/s10732-018-9385-x
- *Large Neighbourhood Search with Adaptive Guided Ejection Search for the Pickup and Delivery Problem with Time Windows.* Timothy Curtois, Dario Landa-Silva, Yi Qu, Wasakorn Laesanklang. EURO Journal on Transportation and Logistics, Vol. 7, No. 2, pp. 151-192, 2018. DOI: 10.1007/s13676-017-0115-6
- *An Evolutionary Strategy with Machine Learning for Learning to Rank in Information Retrieval.* Osman A. Ibrahim, Dario Landa-Silva. Soft Computing, Vol. 22, No. 10, pp. 3171-3185, 2018. DOI: 10.1007/s00500-017-2988-6
- *Decomposition Techniques with Mixed Integer Programming and Heuristics for Home Healthcare Planning.* Wasakorn Laesanklang, Dario Landa-Silva. Annals of Operations Research, Vol. 256, No. 1, pp. 93-127, 2017. DOI: 10.1007/s10479-016-2352-8
- *Randomized Heuristics for the Capacitated Clustering Problem.* Anna Martinez-Gavara, Dario Landa-Silva, Vicente Campos, Rafael Marti. Information Sciences, Vol. 417, pp. 154-168, 2017. DOI: 10.1016/j.ins.2017.06.041
- *A Technique Based on Trade-off Maps to Visualise and Analyse Relationships Between Objectives in Optimisation Problems.* Rodrigo Lankaites Pinheiro, Dario Landa-Silva, Jason Atkin. Journal of Multi-criteria Decision Analysis, Vol. 24, No. 1-2, pp. 37-56, 2017. DOI: 10.1002/mcda.1604
- *An Application Programming Interface with Increased Performance for Optimisation Problems Data.* Rodrigo Lankaites Pinheiro, Dario Landa-Silva, Rong Qu, Ademir Aparecido Constantino, Edson Yanaga. Journal of Management Analytics, Vol. 3, No. 4, pp. 305-332, 2016. DOI: 10.1080/23270012.2016.1233514
- *Term Frequency with Average Term Occurrences For Textual Information Retrieval.* Osman A. Ibrahim, Dario Landa-Silva. Soft Computing, Vol. 20, No. 8, pp. 3045-3061, 2016. DOI: 10.1007/s00500-015-1935-7
- *Workforce Scheduling and Routing Problems Literature Survey and Computational Study.* J. Arturo Castillo-Salazar, Dario Landa-Silva, Rong Qu. Annals of Operations Research, Vol. 239, No. 1, pp. 39-67, 2016. DOI: 10.1007/s10479-014-1687-2

- *Term Frequency with Average Term Occurrences For Textual Information Retrieval*. Osman A. Ibrahim, Dario Landa-Silva. *Soft Computing*, pp. 1-17, Springer Online First, December 2015. DOI: 10.1007/s00500-015-1935-7
- *A Hybrid GRASP-VNS for Ship Routing and Scheduling Problem with Discretized Time Windows*. Jesica de Armas, Eduardo Lalla-Ruiz, Christopher Exposito-Izquierdo, Dario Landa-Silva, Belen Melian-Batista. *Engineering Applications of Artificial Intelligence*, 45, pp. 350-360, Elsevier, October 2015. DOI: 10.1016/j.engappai.2015.07.013
- *Workforce Scheduling and Routing Problems Literature Survey and Computational Study*. J. A. Castillo-Salazar, D. Landa-Silva, R. Qu. *Annals of Operations Research*, Springer Online First, August 2014. DOI: 10.1007/s10479-014-1687-2
- *A Heuristic Algorithm Based on Multi-assignment Procedures for Nurse Scheduling*. A. A. Constantino, D. Landa-Silva, E. L. de Melo, C. F. X. de Mendonça, D. Baroni Rizzato, W. Romão. *Annals of Operations Research*, 128(1), pp. 165-183, 2014. DOI: 10.1007/s10479-013-1357-9
- *Particle Swarm Optimization for the Steiner Tree in Graph and Delay-Constrained Multicast Routing Problems*. R. Qu, Y. Xu, J.P. Castro, D. Landa-Silva. *Journal of Heuristics*, 19(2), pp. 317-342, 2013. DOI: 10.1007/s10732-012-9198-2

Delivered Seminars

- **Invited Speaker:** Talk 'Heuristic Techniques for Industrialising Construction: Overview and Opportunities'. Workshop on Integrated Process Planning and Scheduling for Industrialising Construction: Design, Manufacture and Assembly, London, UK, June 2016.
- **Invited Speaker:** Talk 'Moodle activities to promote student engagement in a Computing Professional Ethics Module'. Teaching Transformation Programme (TTP) Conference, The University of Nottingham, UK, April 2015.
- **Invited Plenary Speaker:** Talk 'Heuristic and Evolutionary Algorithms for Tackling Complex Logistic Problems'. CICos 2014 – International Congress of Computing for Optimization and Software, Cuernavaca, Mexico, October 2014.
- **Invited Speaker:** Seminar 'Heuristics, Metaheuristics and Hyperheuristics'. CICos 2014 – International Congress of Computing for Optimization and Software, Cuernavaca, Mexico, October 2014.
- **Invited Plenary Speaker:** Talk 'Workforce Scheduling and Routing – Survey, Computational Study and Recent Developments'. XLVI SBPO – Simpósio Brasileiro de Pesquisa Operacional, Salvador, Brazil September 2014.
- **Invited Speaker:** Talk 'Applying Heuristic and Evolutionary Algorithms to Solve Complex Logistic Problems'. "CiTi – Congreso Internacional de Tecnologías de la Información (International Congress of Information Technologies)" organised by Universidad de Colima, Colima, Mexico, 19-21 September 2012.
- **Invited Speaker:** Talk 'Cooperative Hyper-heuristics for Combinatorial Optimisation'. Seminar Series UAI 2010 "Últimos Avances en Informática (Latest Advances in Computing)" organised by ULL, La Laguna, Tenerife, Spain, November 2010.
- **Invited Speaker:** Talk 'Self-adaptation, Cooperation and Self-assembly in Heuristic Design'. Seminar Series UAI 2009 "Últimos Avances en Informática (Latest Advances in Computing)" organised by ULL, La Laguna, Tenerife, Spain, November 2009.
- **Invited Speaker:** Talk 'Planificación Integral de la Actividad Logística (Integrated Planning for Logistic Activity)'. Sixth Forum on "Technological Innovations for Transport (Transnova 2009)" organised by ULL and Government of Canary Islands, Las Palmas, Gran Canaria, Spain, June 2009.
- **Invited Keynote Speaker:** Talk 'Multi-objective Meta-heuristics for Scheduling and Timetabling'. Workshop on "Multi-objective Meta-heuristics" organised by EU/ME and PM20, Paris, November 2002.