

Laurent ALFANDARI

Professor

Department: Information Systems, Decision
Sciences and Statistics
ESSEC Business School
3 avenue Bernard Hirsch
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Country of origin: France

RESEARCH INTERESTS

Operations Research, Combinatorial Optimization, Mathematical Programming, Decision Sciences,

EDUCATION

- | | |
|------|---|
| 1999 | Doctorate in Operations Research, Paris-Dauphine, PSL University, France |
| 1995 | Master of Research in Management Science, Paris-Dauphine, PSL University, France |
| 1993 | M.Sc in Management (Grande Ecole program), ESSEC Business School, France |
| 1990 | Bachelor in Mathematics & Social Sciences, Paris-Dauphine, PSL University, France |

EMPLOYMENT

Full-time academic positions

- | | |
|----------------|--|
| 2010 - Present | Professor, ESSEC Business School, France |
| 2007 - 2010 | Associate Professor, ESSEC Business School, France |
| 2000 - 2007 | Assistant Professor, ESSEC Business School, France |

Other affiliations and appointments

- | | |
|----------------|---|
| 2019 - 2023 | Academic co-director of ESSEC-CentraleSupélec Master in Data Sciences & Business Analytics, ESSEC Business School, France |
| 2018 - 2021 | Head of PhD concentration in Operations & Data Analytics, ESSEC Business School, France |
| 2013 - Present | Coordinator of MiM Business Analytics Methods track, ESSEC Business School, France |
| 2012 - 2014 | Department head (IDS Department), ESSEC Business School, France |
| 2009 - 2011 | Academic director of ESSEC Master in Logistics & SCM, ESSEC Business School, France |
| 2002 - Present | Member of the LIPN Laboratory, Sorbonne Université, France |
| 1995 - 2002 | Member of the LAMSADE Laboratory, Paris-Dauphine, PSL University, France |

Other professional experiences

1993 - 1993	Consulting in Town Planning and Development of Specialized Retail, PROCOS, France
1992 - 1992	Management controller, Hachette group, France
1992 - Present	Audit reporter, TOTAL, France
1991 - 1991	Marketing, Hachette group, France

GRANTS AND HONORS

Awards and Honors

2020	Teaching Awards ESSEC Top 4 Permanent Professors, ESSEC Business School, France
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PUBLICATIONS

Journal Articles

BISWAS, D., ALFANDARI, L. and ARCHETTI, C. (2024). A Triple Bottom Line optimization model for assignment and routing of on-demand home services. *Computers & Operations Research*, 167, pp. 106644.

DELLE DONNE, D., ARCHETTI, C., ALFANDARI, L. and LJUBIC, I. (2023). Freight-on-Transit for urban last-mile deliveries: A strategic planning approach. *Transportation Research Part B: Methodological*, 169, pp. 53-81.

ALFANDARI, L., LJUBIC, I. and DE MELO DA SILVA, M. (2022). A tailored Benders decomposition approach for last-mile delivery with autonomous robots. *European Journal of Operational Research*, 299(2), pp. 510-525.

BISWAS, D. and ALFANDARI, L. (2022). Designing an optimal sequence of nonpharmaceutical interventions for controlling COVID-19. *European Journal of Operational Research*, 303(3), pp. 1372-1391.

ALFANDARI, L., HASSANZADEH, A. and LJUBIC, I. (2021). An Exact Method for Assortment Optimization under the Nested Logit Model. *European Journal of Operational Research*, 291(3), pp. 830-845.

FURINI, F., LJUBIC, I., SAN SEGUNDO, P. and ZHAO, Y. (2021). A branch-and-cut algorithm for the Edge Interdiction Clique Problem. *European Journal of Operational Research*, 294(1), pp. 54-69.

ALFANDARI, L. and TOULOUSE, S. (2021). Approximation of the Double Traveling Salesman Problem with multiple stacks. *Theoretical Computer Science*, 877, pp. 74-89.

ALFANDARI, L., DENOYEL, V. and THIELE, A. (2020). Solving Utility-Maximization Selection Problems with Multinomial Logit Demand: Is the First-Choice Model a Good Approximation? *Annals of Operations Research*, 292, pp. 553-573.

ZHAO, Y. and ALFANDARI, L. (2020). Design of diversified package tours for the Digital Travel industry: A branch-cut-and-price approach. *European Journal of Operational Research*, 285(3), pp. 825-843.

- ZHAO, Y. and ALFANDARI, L. (2020). Design of diversified package tours for the Digital Travel industry: A branch-cut-and-price approach. *European Journal of Operational Research*, 285(3), pp. 825-843.
- ALFANDARI, L., DAVIDOVIC, T., FURINI, F., LJUBIC, I., MARAS, V. and MARTIN, S. (2019). Tighter MIP models for Barge Container Ship Routing. *Omega*, 82, pp. 38-54.
- FARD, M.K. and ALFANDARI, L. (2019). Trade-Offs Between the Stepwise Cost Function and Its Linear Approximation for the Modular Hub Location Problem. *Computers & Operations Research*, 104, pp. 358-374.
- ESPINOZA GARCIA, J.C. and ALFANDARI, L. (2018). Robust Location of New Housing Developments Using a Choice Model. *Annals of Operations Research*, 271, pp. 527-550.
- ALFANDARI, L. and ESPINOZA GARCIA, J.C. (2018). Robust Optimization for Non-Linear Impact of Data Variation. *Computers & Operations Research*, 99, pp. 38-47.
- DENOYEL, V., ALFANDARI, L. and THIELE, A. (2017). Optimizing Healthcare Network Design Under Reference Pricing and Parameter Uncertainty. *European Journal of Operational Research*, 263(3), pp. 996-1006.
- GIANESSIA, P., ALFANDARI, L., LETOCART, L. and WOLFLER CALVOA, R. (2016). A Column Generation Based Heuristic for the Multicommodity-Ring Vehicle Routing Problem. *Transportation Research Procedia*, 12, pp. 227-238.
- BUTELLE, F., ALFANDARI, L., COTI, C., FINTA, L., LÉTOCART, L. and PLATEAU, G. (2016). Fast Machine Reassignment. *Annals of Operations Research*, 242(1), pp. 130-160.
- GIANESSI, P., ALFANDARI, L., LÉTOCART, L. and CALVO, R.F. (2016). The Multicommodity-Ring Location Routing Problem. *Transportation Science*, 50(2), pp. 541-558.
- ALFANDARI, L., PLATEAU, A. and SCHEPLER, X. (2015). A Branch-and-Price-and-Cut Approach for Sustainable Crop Rotation Planning. *European Journal of Operational Research*, 241(3), pp. 872-879.
- ALFANDARI, L. and MONNOT, J. (2014). A Note on the Clustered Set Covering Problem. *Discrete Applied Mathematics*, 1(164), pp. 13-19.
- ALFANDARI, L., SADKI, J., PLATEAU, A. and NAGIH, A. (2013). Hybrid Column Generation for Large-Size Covering Integer Programs: Application to Transportation Planning. *Computers & Operations Research*, 40(8), pp. 1938-1946.
- ROZENKNOP, A., WOFLER, C., ALFANDARI, L., CHEMLA, D. and LETOCART, L. (2013). Solving Electricity Production Planning By Column Generation. *Journal of Scheduling*, 16(6), pp. 585-604.
- ALFANDARI, L., LEMALADE, J.L., NAGIH, A. and PLATEAU, G. (2011). A MIP Flow Model for Crop-Rotation Planning in a Context of Forest Sustainable Development. *Annals of Operations Research*, 190(1), pp. 149-164.
- LIBERTI, L., ALFANDARI, L. and PLATEAU, M.C. (2011). Edge Cover by Connected Bipartite Subgraphs. *Annals of Operations Research*, 188(1), pp. 307-329.
- ALFANDARI, L. (2007). Improved Approximation of the General Soft-capacitated Facility Location Problem. *RAIRO - Operations Research*, pp. 83-93.
- ALFANDARI, L. (2001). The Minimum Bounded-Diameter Spanning Forest Problem Is Log-Approximable. *Foundations of Computing and Decision Sciences*, pp. 123-132.
- ALFANDARI, L. and PASCHOS, V. (2000). Master-slave Strategy and Polynomial Approximation. *Computational Optimization and Applications*, pp. 231-245.

ALFANDARI, L. and PASCHOS, V. (1999). Approximating Minimum Spanning Tree of Depth 2. *International Transactions in Operational Research*, pp. 607-622.

ALFANDARI, L. (1999). The Greedy Approach for the Crew Pairing Problem: Some Cases of Polynomial Subproblems. *Cahiers du Lamsade (Laboratoire d'Analyse et de Modélisation de Systèmes d'Aide)*, pp. 1-10.

Book chapters

ALFANDARI, L. (2018). Décision et complexité : le cas de la planification optimale de tout simplisme. In: *Complexité et organisations : faire face aux défis de demain*. 1st ed. Eyrolles, pp. 229-242.

ALFANDARI, L. and NAGIH, A. (2010). Applications of Combinatorial Optimization: Airline Crew Pairing Optimization. In: *Applications of Combinatorial Optimization*. 1st ed. Wiley, pp. 1-22.

ALFANDARI, L. and NAGIH, A. (2006). Optimisation de la construction de rotations d'équipages en transport aérien. In: *Optimisation combinatoire 3. Applications (traité IC2)*. 1st ed. Hermès Sciences, Lavoisier, pp. 23-45.

ALFANDARI, L., PLATEAU, A. and TOLLA, P. (2004). A Path Relinking Algorithm for the Generalized Assignment Problem. In: *Metaheuristics Computer Decision-making*. 1st ed. Kluwer Academic Publishers, pp. 1-17.

Conference proceedings

ALFANDARI, L. and MONNOT, J. (2010). Approximation of the Clustered Set Covering Problem. In: *Electronic Notes in Discrete Mathematics*. ISCO.

ALFANDARI, L. and PASCHOS, V. (1998). On the Approximation of Some Spanning Arborescence Problems. In: *Advances in Computer and Information Sciences '98. 13th International Symposium on Computer and Information Sciences (ISCIS)*. IOS Press, pp. 574-581.

Conferences

ALFANDARI, L., LJUBIC, I. and PUNAM-MANDAL, M. (2024). Robust facility location for earthquake preparedness with aftershocks. In: *2024 Optimisation au deuxième niveau (Centre International de Rencontres Mathématiques)*. Marseille.

ALFANDARI, L., HASSANZADEH, A. and LJUBIC, I. (2024). Fractional programming for Assortment optimization. In: *2024 International Symposium on Combinatorial Optimization (ISCO)*. Tenerife.

ALFANDARI, L., LJUBIC, I. and PUNAM-MANDAL, M. (2023). Robust Facility Location in Disaster Preparation for Earthquakes with Aftershocks. In: *OR 2023: Decision Support & Choice-Based Analytics for a Disruptive World*. Hamburg.

ALFANDARI, L. (2023). Approximation of the Double Traveling Salesman Problem with Multiple Stacks. In: *23rd Congress of International Federation of Operational Research Societies (IFORS) 2023*. Santiago de Chile.

DELLE DONNE, D., KUZBAKOV, Y. and ALFANDARI, L. (2023). A Branch-and-price Approach for Last-mile Deliveries with Capacitated Robot Stations. In: *23rd Conference of the International Federation of Operational Research Societies 2023*. Santiago.

DELLE DONNE, D., ALFANDARI, L., ARCHETTI, C. and LJUBIC, I. (2022). Freight-on-Transit for urban last-mile deliveries: A Strategic Planning Approach. In: *International Workshop on Freight Transportation and Logistics (ODYSSEUS)*. Tanger.

- DELLE DONNE, D., ALFANDARI, L., ARCHETTI, C. and LJUBIC, I. (2022). Freight-on-Transit for urban last-mile deliveries: A Strategic Planning Approach. In: Spanish Conference on Statistics and Operations Research (SEIO). Granada.
- ARCHETTI, C., ALFANDARI, L. and ALFANDARI, L. (2022). Capacity Design and Resource Allocation in Online Food Delivery Platforms. In: International Workshop on Freight Transportation and Logistics (Odysseus 2022). Tanger.
- ARCHETTI, C., ALFANDARI, L. and ALFANDARI, L. (2022). Capacity Design and Resource Allocation in Online Food Delivery Platforms. In: International Workshop on Freight Transportation and Logistics (Odysseus 2022). Tanger.
- ALFANDARI, L. (2022). Optimizing Drone Use in Early Infant Diagnosis of HIV Supply Chain in Less Developed Countries. In: 2022 Euro. Espoo.
- FURINI, F., LJUBIC, I., SAN SEGUNDO, P. and ZHAO, Y. (2021). The Edge Interdiction Clique Problem. In: 31st European Conference on Operational Research 2021. Athens (virtual).
- ALFANDARI, L., LJUBIC, I. and DE MELO DA SILVA, M. (2021). A tailored Benders Decomposition Approach for Last-Mile Delivery With autonomous Robots. In: 31st European Conference on Operational Research 2021 (EURO 2021). Athens.
- DELLE DONNE, D., ALFANDARI, L., ARCHETTI, C. and LJUBIC, I. (2021). Freight on Public Transport: Strategical decision making with mixed integer programming. In: European Conference on Operational Research (EURO). Athens.
- ALFANDARI, L., HASSANZADEH, A. and LJUBIC, I. (2020). Une méthode exacte pour le problème d'assortiment optimal avec modèle de choix nested-logit. In: 21st ROADEF 2020.
- ALFANDARI, L. and PAPIER, F. (2019). Call-Center-Based Scheduling of Sales Field Visits. In: 2019 POMS Annual Conference.
- ALFANDARI, L. and ALFANDARI, L. (2019). Le problème de Team Orienteering avec contraintes de diversité entre les tours : Une approche de Branch-and-Price-and-Cut. In: ROADEF 2019.
- ALFANDARI, L. and ALFANDARI, L. (2019). Le problème de Team Orienteering avec contraintes de diversité entre les tours : Une approche de Branch-and-Price-and-Cut. In: ROADEF 2019.
- ALFANDARI, L., LJUBIC, I. and MELO, M. (2019). Optimal Vehicle Routing with Autonomous Devices for Last-Mile Delivery. In: 2019 Workshop of the EURO Working Group on Vehicle Routing and Logistics optimization (VeRoLog 2019).
- ALFANDARI, L. and ESPINOZA-GARCIA, J.C. (2019). Robust optimization for non-linear impact of data variation. In: 30th European Conference on Operational Research (EURO 2019). Dublin.
- ALFANDARI, L. and PAPIER, F. (2018). Heuristics for Call-Center-Based Scheduling of Field Visits. In: 7th Meeting of the EURO Working Group on Stochastic Modelling (StochMod 2018).
- ALFANDARI, L., DAVIDOVIC, T., FURINI, F., LJUBIC, I., MARAS, V. and MARTIN, S. (2018). New MIP models for liner shipping route design with empty container repositioning. In: 4th International Conference on Logistics Operations Management (GOL'2018).
- ALFANDARI, L. and ESPINOZA-GARCIA, J.C. (2018). Optimisation robuste pour la localisation de nouveaux logements avec modèle de choix. In: 19ème Congrès de la société Française de Recherche Opérationnelle et d'Aide à la Décision (ROADEF 2018).
- ALFANDARI, L. and ESPINOZA-GARCIA, J.C. (2018). Robust Optimization for Non-Linear Impact of Data Variation. In: ISMP Bordeaux 2018 (International Symposium of Mathematical Optimization).

- ALFANDARI, L. (2018). Robust Optimization for Non-Linear Impact of Data Variation. In: Workshop on Robust Optimization Avignon (RO 2018).
- ALFANDARI, L., FURINI, F., LJUBIC, I. and MARTIN, S. (2017). New MIP models for Liner Shipping Route Design with Empty Container Repositioning. In: 18ème Conférence ROADEF de la Société Française de Recherche Opérationnelle et d'Aide à la Décision.
- ALFANDARI, L., DAVIDOVIC, T., FURINI, F., LJUBIC, I., MARAS, V. and MARTIN, S. (2017). Tighter MIP Formulations for the Barge Container Ship Routing Problem. In: 21st Conference of the International Federation of Operational Research Societies (IFORS).
- ALFANDARI, L., DENOYEL, V. and THIELE, A. (2016). Optimisation robuste pour la sélection d'un réseau d'hôpitaux dans un système de Prix de Référence. In: 17ème congrès de la société Française de Recherche Opérationnelle et d'Aide à la Décision (ROADEF2016).
- ALFANDARI, L. and KESHVARI-FARD, M. (2015). Localisation de hubs avec fonction de coût discrète. In: ROADEF February Conference.
- ALFANDARI, L., DENOYEL, V. and THIELE, A. (2015). Robust in Network Selection of Hospitals by Healthcare Under Reference Pricing. In: EURO 2015 12 July 2015 Conference.
- ALFANDARI, L., DENOYAL, V. and THIELE, A. (2014). Optimal Facility In-Network Selection for Healthcare Payers under Reference Pricing. In: 20th Conference of the International Federation of Operational Research Societies.
- ESPINOZA, I.C. and ALFANDARI, L. (2014). Robust Facility Location Optimization with Location-dependent Demands. In: 2014 INFORMS Annual Meeting.
- ALFANDARI, L., PLATEAU, A. and SCHEPLER, X. (2014). Un algorithme de branch-and-price-and-cut pour la planification durable des rotations agricoles. In: 15ème congrès annuel de la Société française de recherche opérationnelle et d'aide à la décision (ROADEF).
- ALFANDARI, L. (2013). Approximation du problème de Clustered Set Covering. In: 14ème Conférence ROADEF 2013.
- ALFANDARI, L., NAGIH, A., PLATEAU, A. and SADKI, J. (2013). Hybrid Column Generation for Large-Size Covering Integer Programs. In: 26th Conference of European Chapter on Combinatorial Optimization.
- ALFANDARI, L., NAGIH, A., PLATEAU, A. and SADKI, J. (2013). Hybrid Column Generation for Large-Size Integer Programs. In: 26th EURO – INFORMS Joint International Conference.
- ALFANDARI, L. (2013). Un algorithme de BranchandPrice pour le problème de planification durable de rotations culturelles. In: 14ème Conférence ROADEF 2013.
- ALFANDARI, L., NAGIH, A., PLATEAU, A. and SADKI, J. (2012). Generalizations of Dobson Approximation Algorithm and Cooperation with Column Generation for Large-Size Covering Integer Programs. In: 2nd International Symposium on Combinatorial Optimization (ISCO 2012).
- ALFANDARI, L. (2012). Planification et routage pour l'optimisation de la distribution urbaine de marchandise. In: 13e congrès annuel de la Société Française de Recherche Opérationnelle et d'Aide à la Décision (ROADEF 2012).
- ALFANDARI, L., NAGIH, A., PLATEAU, A. and SADKI, J. (2011). Hybridization of Column Generation and Approximation Heuristics for Large-size Covering Integer Programs. In: MIC 2011 - Metaheuristics International Conference.
- ALFANDARI, L., NAGIH, A., PLATEAU, A. and SADKI, J. (2011). Schéma hybride de génération de colonnes pour un problème de planification de production agricole. In: ROADEF 2011.

ALFANDARI, L. (2000). Logical Definability of Covering and Partitioning Minimization Problems. In: CLAI0 X (Congresso Latino-Americano de Investigacion Operativa)-Latin-American Congress of Operations Research, Mexico.

Invited speaker

ALFANDARI, L., LJUBIC, I. and DE MELO DA SILVA, M. (2022). A Tailored Benders Decomposition Approach for Last-mile Delivery with Autonomous Robots. In: International Conference on Operations Research and Enterprise Systems (ICORES). Online.

Working Papers

DELLE DONNE, D., ALFANDARI, L., ARCHETTI, C. and LJUBIC, I. (2021). *Freight-on-Transit for urban last-mile deliveries: A Strategic Planning Approach*. 2104, ESSEC Business School.

ALFANDARI, L., LJUBIC, I. and DE MELO DA SILVA, M. (2019). *Onlast-mile Delivery with Autonomous Robots*. ESSEC Business School.

KESHVARI FARD, M. and ALFANDARI, L. (2018). *Trade-offs between the Stepwise Cost Function and its Linear Approximation for the Modular Hub Location Problem*. ESSEC Business School.

ESPINOZA GARCIA, J.C. and ALFANDARI, L. (2015). *Robust Location of New Housing Developments Using a Choice Model*. ESSEC Business School.

ALFANDARI, L., PLATEAU, A. and SCHEPLER, X. (2014). *A Branch-and-Price-and-Cut Approach for Sustainable Crop Rotation Planning*. ESSEC Business School.

ALFANDARI, L. (2005). *Improved Approximation of the General Soft-Capacitated Facility Location Problem*. ESSEC Business School.

ALFANDARI, L. (2004). *Choice Rules with Size Constraints for Multiple Criteria Decision Making*. ESSEC Business School.

ALFANDARI, L., PLATEAU, A. and TOLLA, P. (2002). *A Path-relinking Algorithm for the Generalized Assignment Problem*. ESSEC Business School.

ALFANDARI, L. and PLATEAU, A. (2001). *A two-phase Path Relinking algorithm for the Generalized Assignment Problem*.

Press

DELLE DONNE, D., ARCHETTI, C., LJUBIC, I. and ALFANDARI, L. (2023). When public transport delivers. *ESSEC Knowledge*.

ALFANDARI, L., ARCHETTI, C. and LJUBIC, I. (2021). Sustainable city logistics. *ESSEC Knowledge*.

OTHER RESEARCH ACTIVITIES

Ad-hoc reviewer for :

Annals of Operations Research, Computational Optimization and Applications, Computers & Operations Research, Discrete Applied Mathematics, European Journal of Operational Research, RAIRO - Operations Research

Organisation of a conference

2015 Organization of the French OR contest : "Les Pros de la RO", nov. 2015 (finalists : Gefco-Eurodecision, Amadeus, Decision Brain, Orange), France

2013 Organization of an event for practitioners and managers: "La Recherche Opérationnelle: clé de la performance des entreprises?", 200 managers and

practionners attended, round-table with Air France, Amadeus, and Bouygues Télécom, Paris-Dauphine, PSL University, France

Affiliations

- 2011 - 2015 Vice-President of the ROADEF
- Since 2000 Member of the French OR Society (ROADEF)

PhD Supervision

- 2020 Y. ZHAO (ESSEC Business School), Thesis co-director
- 2018 Milad KESHVARI FARD (ESSEC Business School), Thesis co-director, First Placement: Assistant Professor - Newcastle University Business School
- 2017 Victoire GARNIER ép DENOYEL (ESSEC Business School), Thesis director, First Placement: Assistant Professor, Business Analytics - Mercy College Graduate School of Business
- 2017 Juan Carlos ESPINOZA (ESSEC Business School), Thesis director, First Placement: Assistant Professor - Tecnologico de Monterrey
- 2014 P. GIANESSI (Université Sorbonne Paris Nord), Thesis co-director
- 2011 J. SADKI (Université Sorbonne Paris Nord), Thesis co-director
- 2006 , Thesis co-director

Other research activities

- Since 1970 Member of GREFELOT, research group on transportation optimization

PROFESSIONAL ACTIVITIES

Consulting

- 1970 - Present Consulting activities & industrial contracts : SNCF, ESSEC BS, Babcock-Wanson, Aid-Impact...